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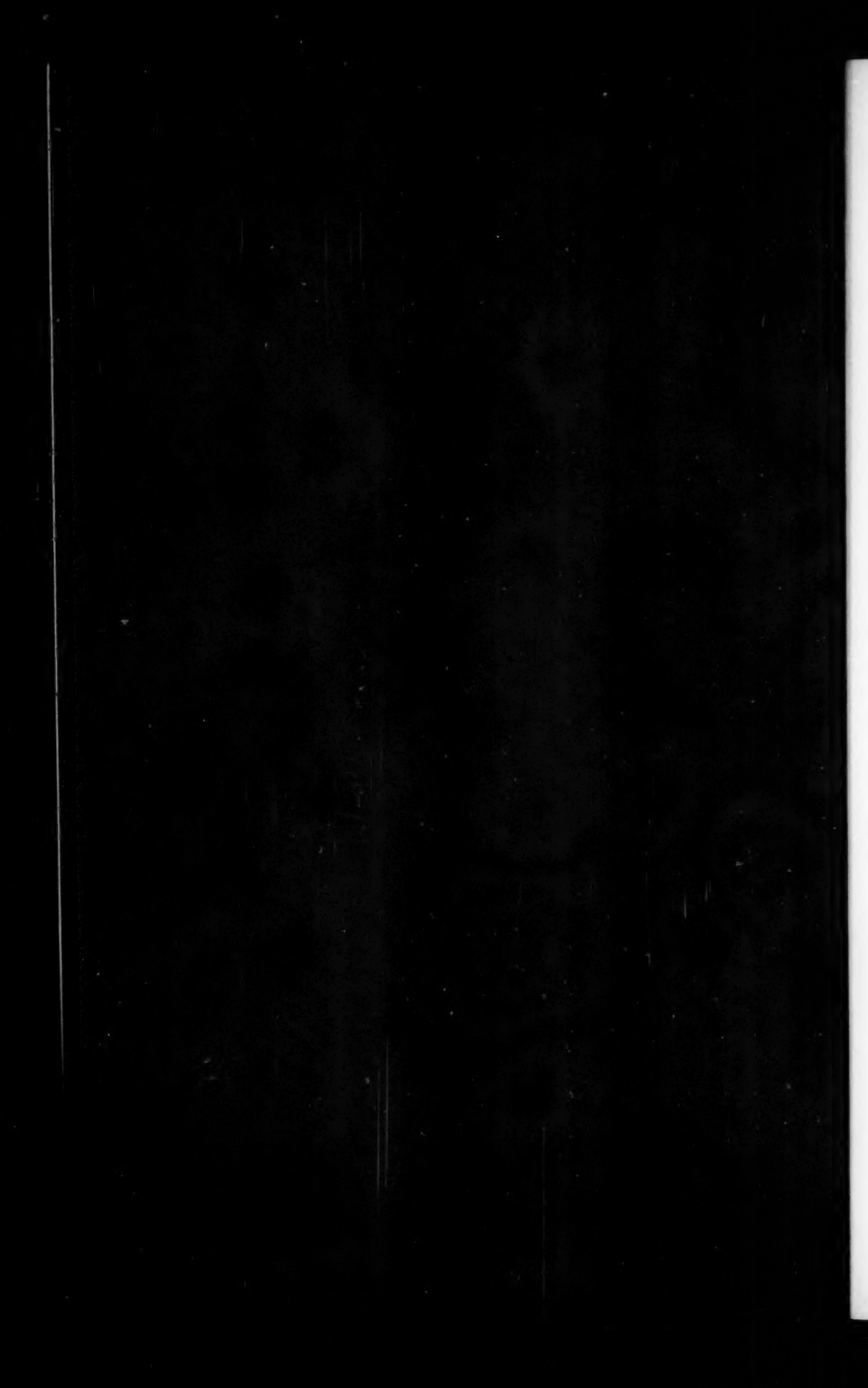
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FRED C. ZAPFFE, Editor

January, 1948

The Association of American Medical Colleges*

WM. S. McELROY

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Pittsburgh, Pa.

By custom it is the duty of the President of this Association to deliver an address at the close of his term of office. I have attended practically every meeting of this Association for the past twenty years, first as a member of the faculty and later as the Dean of a member college. During this period our Secretary, Dr. Zapffe, year by year has pointed out that many of our members have a rather vague conception of what our Association is all about and do not even read the JOURNAL and News Bulletins. Furthermore, Deans seem to come and go at a surprising rate. It seemed appropriate and timely, therefore, to select as the title of my address, "The Association of American Medical Colleges."

What are the purposes and objectives of this Association? This question can be answered best by reviewing briefly some of the historical high lights of medical education in this country even at the risk of boring you.

In 1847, representatives of 28 medical schools and 48 medical societies met in Philadelphia and organized the American Medical Association. Nathaniel Chapman, a distinguished member of the faculty of the University of Pennsylvania for many years, was elected the first President. At the first meeting, the discussions and actions taken were largely centered on the deplorable state of medical practice and education in this country. It is interesting to note that medical educators played a prominent role in the organization of the American Medical Association in recognition of the important relation of medical education to standards of medical practice. During the early years of the American Medical Association's existence efforts were made to reform medical education without, however, much success. The Association of Medical Teachers was organized after the Civil War and met first in Cincinnati in 1867 and two years later in Washington in another effort to reform medical education. This attempt proved to be unsuccessful.

After the Civil War the population increased rapidly due to immigration, and at the same time, migration west occurred, especially into the Mississippi

*Address of President, delivered at the Fifty-eighth Annual Meeting of the Association of American Medical Colleges, held at Sun Valley, Idaho, October 27-29, 1947.

Valley. A shortage of doctors stimulated the development of many new medical schools, for the most part commercial enterprises, with further lowering of standards of medical practice.

On June 2, 1876, representatives of leading medical schools convened in Philadelphia at the Jefferson Medical College. In the archives of this Association is an interesting old volume, which records the purpose of the convention as stated in the call for the meeting as follows: "To consider all matters relating to reform in medical college work" and for "the suppression of existing evils and methods and practical improvement." Twenty-two schools sent representatives and nine others communications. They decided to form a permanent organization, and the convention resolved itself into a provisional Association of American Medical Colleges and a committee was appointed to draft a Constitution and By-Laws. The second meeting was held in Chicago at the Palmer House on June 2, 1877, and was chiefly devoted to consideration of the draft of the constitution and by-laws, largely the work of Dr. Edward Curtis of the College of Physicians and Surgeons of New York. As finally adopted, the constitution states as the object of the Association, "The advancement of medical education in the United States and the establishment of a common policy among medical colleges in the more important matters of College Management." The Articles of Confederation, to which all members subscribed and agreed to conform, provided for a regular course of study of not less than 20 weeks and for the first time the subjects to be included in the curriculum, including pathology, were specified. Also, member colleges were required to submit detailed annual reports regarding registration, courses of study, etc.

At the Chicago meeting in 1877, with the adoption of the Constitution signed by the official representatives of the Medical Schools present, the Association of American Medical Colleges was born.

This Association was formed by a group of the outstanding medical teachers on the faculties of the better medical schools back in 1877 and, as a result of their efforts, the groundwork was laid for the reforms that followed later.

As stated in the original Constitution, the sole object and purpose of this Association is the advancement of medical education in the United States. Its purpose has not changed since the first Constitution was adopted in 1877. It is the same today. It is the only organization in this country (and so far as I know, in the world) whose sole objective is the advancement of medical education. Its membership includes all members of all of the faculties of the approved medical schools in the United States and Canada. They represent a large percentage of the outstanding members of the medical profession. We naturally should look to them for leadership in the field of medical education and they have in the Association of American Medical Colleges the instrument to accomplish their objectives.

The next matter that I would like to discuss is the relation of this Association to the other agencies concerned with medical education, namely, the Council on Medical Education and Hospitals of the American Medical Association, the Federation of State Boards, the various Specialty Boards, the American College

of Physicians, the American College of Surgeons, etc. It is highly important that they all work in harmony, one with the other, and avoid duplication of effort and programs, which always leads to confusion. The medical schools of this country have to bear the principal burden in any effective program in medical education. They select the candidates and so determine who the doctors are to be and are responsible for their basic professional training. They are largely responsible for training doctors in the specialized fields of medicine, including public health, and provide for the further education of physicians generally. They must carry on most of the country's research into the prevention and cure of disease and, in large measure, are responsible for the training of individuals who conduct this research. The medical schools are the keystone around which the medical and health services are built.

The necessity for maintaining at all times a close and harmonious relation between the medical schools individually, and collectively through the Association of American Medical Colleges, and the groups referred to would seem to be quite apparent. Time does not permit discussion of the relation of this Association to all of them. I would, however, like to comment on the relation to the Council on Medical Education and Hospitals of the American Medical Association.

I purposely pointed out the important part that medical educators played in the organization of the American Medical Association back in 1847, and the early interest of the American Medical Association in medical education, for this was the forerunner of the organization of the Council on Medical Education 57 years later, namely, in 1904.

In 1902 Dr. Arthur Dean Bevan was made Chairman of the Committee on Medical Education of the American Medical Association. He graduated from Rush Medical College in 1883 and was interested in medical education during his entire professional life, beginning as professor of anatomy at Oregon State College in 1886-87 and later as professor of surgery at Rush Medical College and the University of Chicago. He was actively interested in the affairs of this Association, and was largely responsible for the formation of the Council on Medical Education with a stable membership. You are all familiar with the great work of Doctor Bevan and his committee, all of which culminated in the Flexner report published in 1910 and the revolutionary improvement in medical education that occurred thereafter. As Doctor Bevan has pointed out, it seemed best at the time that the American Medical Association undertake the survey and classification of medical schools through the creation of the Council on Medical Education. Surveys are expensive and certainly this Association was not in a position to assume the financial burden.

In a paper read by Doctor Bevan before this Association and published in the JOURNAL in 1936, he called attention to the fact that the Council on Medical Education has no legal power to enforce its recommendations. The success of the Council was due, in large measure, to the active support and cooperation which it received from the Association of American Medical Colleges, the member colleges and their faculties, and the State Boards of Medical Examiners,

who, after all, have the legal authority. To cooperate more effectively in elevating standards, they organized the Federation of State Boards in 1913. A survey in itself does not accomplish anything, but rather the use that is made of it. Since the medical schools have to execute most of the programs in medical education, I do not see how surveys can be very successful without their wholehearted cooperation and participation; otherwise, in my opinion, they would be pretty much of a flop.

I mention this because on several occasions in the past differences of viewpoint have developed between this Association and the Council and, in fact, with faculties of individual medical schools. To correct this, a liaison committee was formed, consisting of representatives of the Council and this Association, which has been very helpful in bringing about closer cooperation and harmony. I am happy to tell you that the Council of this Association met with the Council on Medical Education during the annual meetings of the American Medical Association in Atlantic City last June to discuss in a preliminary way plans for the proposed survey which will be conducted as a joint project by the Council on Medical Education and Hospitals of the American Medical Association and the Association of American Medical Colleges. A joint planning committee was appointed, and you will receive a report from our representatives at the Executive Session.

I think we all appreciate the great contribution of the Council of the American Medical Education to medical education past and present, and this Association should not attempt to duplicate certain of their activities, but to support them in every way possible. Certain projects can be carried out to best advantage as a joint enterprise; others by this Association primarily, to which I will refer later.

Before leaving the subject of reform in medical education that occurred in the early part of this century, I cannot refrain from calling attention to another influence that, to me at least, equals or even surpasses in importance the great contribution of Doctor Bevan's Committee and the Flexner Report of 1910. I refer to the Johns Hopkins Medical School and the hospital which was dedicated on May 6, 1889. This marked a new departure in medical education in the United States that had nothing to do with surveys and the like. Under the leadership of a group of young medical educators who comprised the original faculty, revolutionary improvements in medical education were introduced which, among other things, brought medical students into the wards of the hospital, as Harvey Cushing's dedication to the "Osler" indicates:

"To Medical Students.

In the hope that something of Osler's spirit may be conveyed to those of a generation that has not known him; and particularly to those in America, lest it be forgotten who it was that made it possible for them to work at the bedside in the wards."

The Hopkins method soon spread to a number of other leading medical schools of the time, for the most part supported by private benefaction. To Hop-

kins and to this relatively small group of schools medical education owes a debt of gratitude that with the passing of time tends to be overlooked.

So much for the preliminaries, now let us get down to the real point of my remarks which concerns the future of this Association. As a result of closer contact with the affairs of this Association during the past several years, I am quite convinced that the best approach to the solution of many of the pressing current and obvious future problems that medical schools and medical education face is through this Association. It should, therefore, assume a position of more aggressive leadership and importance for the following reasons:

1. This Association has a single purpose and one objective, as I have tried to emphasize, namely, the advancement of medical education. In the mind of the public it is not involved in current controversial medical issues which do not for the most part concern medical education. This Association, therefore, can deal with problems in the field of medical education unhampered.
2. The membership of this Association comprises all of the approved medical schools and their faculties—a select and representative group, geographically and otherwise, actively engaged in medical education and research and, hence, best qualified to lead the way.
3. Medical schools have to bear the principal burden of carrying out most of the programs in medical education and, therefore, it would expedite their successful execution if medical schools through this Association participated at the planning level.

There are many projects that this Association is best qualified to sponsor and carry out if it is to meet its obligations and fulfill its mission in the field of medical education. I will not bore you with my own ideas at this time. To illustrate, I would, however, like to single out one example. Why not pick the financial problem of medical education? To open the discussion I have selected for a number of reasons an excerpt from the review for 1946 of the Rockefeller Foundation by Dr. Raymond B. Fosdick, President of the Foundation, entitled "The Magic-Wand Theory of Medical Advance," as follows:

"The increasing availability of money for research in medicine is beginning to embarrass our medical schools. Where is the trained personnel coming from to make use of these funds? The general public has contributed enthusiastically to such causes as infantile paralysis, cancer, heart disease and tuberculosis. Recently, through the National Institute of Health and the scientific branches of the armed forces, the Federal Government allocated more than \$6,000,000 for similar specialized projects.

But from what source are we to get the scientists and technicians competent to work in these fields? Their training is a matter of years of preparation and it cannot be extemporized.

There seems to be a widespread public belief in what might be called the magic wand theory of medical advance. This theory has been stimulated by the dramatic development in recent years of such remedies as insulin, penicillin, the sulfa drugs and the blood substitutes. According to this theory, our research

laboratories stand ready at any time to turn money into scientific discoveries; in other words, the bottleneck to further advance is the lack of funds; with adequate funds we can buy a cure for cancer or infantile paralysis or any other disease which afflicts mankind.

The bottleneck, of course, is not the lack of funds; it is the lack of capable and thoroughly trained investigators to use the funds. The medical schools, to which we must look for these investigators, do not possess and cannot now obtain the fundamental facilities through which alone this increasing demand can be met. Indeed, many of our medical schools are in the position of a cook asked to prepare a wedding feast for which the champagne has been furnished but no water to boil the potatoes.

A survey of American medical schools indicates beyond question that what is urgently needed is not money earmarked for projects, but free funds for the training of physicians. The imposing endowments of former years dwindled during the days of panic and depression; interest rates have been cut; and sources of replenishment have been dried up by heavy taxation or by curtailment of legislative grants. The increased cost of living is tempting—indeed, in some cases, is forcing—the teachers of medicine to abandon their work in the medical schools and to take up private practice.

There are in the United States today 70 medical schools offering full four year courses in medicine. Twenty-four of these receive their major support from state legislatures, and three more are aided by less substantial sums provided by city governments. All the others are maintained solely by tuition fees, endowment income and gifts. Even the tax supported schools depend on private sources for important parts of their programs.

The total budgets of these 70 schools approximate \$25,000,000. With this money they must not only produce the doctors we need, but they must carry on most of the country's research into the cause and cure of disease. One of our most famous medical schools has recently reviewed its budget and has decided that even without expanding into new fields—merely to meet reasonably well the responsibilities it is already carrying—it must spend about double its present appropriation.

Medical schools need money desperately—but not for projects. They need it for salaries, for basic plant facilities, for clinical services. It is popularly supposed that the foundations can carry the financial responsibility for medical education, but nothing could be further from the truth. The total sum available from foundations for medical education and research is only about from \$3,000,000 to \$4,000,000 annually, and much of it—far too much of it—is restricted to special diseases.

This is not the place for a discussion of further government subvention of education; that subject is certain to receive an active hearing elsewhere. But insofar as our medical schools rely on private support—and many of the best of them do—that support should be intelligent and discriminating. We cannot build research without the foundations of trained personnel. We cannot grow orchids in a greenhouse that lacks coal.

Doctor Fosdick's figures may be a little off on the low side for the last report of the Council on Medical Education and Hospitals of the American Medical Association indicates a total budget figure of \$43,000,000 and income from tuition of \$12,000,000. The American Medical Association figures were, no doubt, compiled from reports received from the individual schools and may be more accurate. On the other hand, they may have been padded and, therefore, too high. A figure midway between the two may be closer to the truth. In any event, the total subsidy of the 70 four year medical schools is less than the annual take in the polio and cancer drives and a drop in the bucket in terms of the total sum spent annually for all medical and health purposes.

Doctor Fosdick presents as clearly as it is possible to do so the financial problem that medical schools face. He fails, however, to point out that this has been the real problem in the majority of the medical schools for some time, and these are the schools that have been responsible for training a large percentage of the physicians. The difficulty now is that the schools that formerly were well financed mostly from endowments and gifts from large foundations, because of changing conditions, are now in the same boat. They constitute a relatively small group to whom we have all looked for leadership and the tragic thing about it is that they, too, are now in financial distress. If medical schools occupy such a key position in the whole medical picture, why have they not been able to obtain more adequate funds?

Why not try to find out? The Association of American Medical Colleges is the logical organization to tackle the problem as a major project and devise ways and means of solving it.

If the public and private funds now available for medical research could be diverted into the basic budgets of the medical schools, the problem would be largely solved, and at the same time the research funds would be more productive. In this connection the recent announcement of the John and Mary Markle Foundation of Post Fellowship Grants to Medical Schools is most encouraging.

I selected for discussion "The Association of American Medical Colleges" with a single thought in mind in the hope that it might stimulate the membership to greater interest in its welfare and more active support. This is necessary if it is to assume a position of aggressive leadership and importance in the field of medical education, which I think should be a matter of vital concern to all of us.

I hope you will, as a result of my feeble effort, give serious and favorable consideration to the recommendations of the Executive Council that affect the future of this Association, to be presented at the executive session.

Finally, I want to tell you that I consider it a high honor to have had the privilege of serving as your President during the past year, for which I thank you all very, very much.

The Aims and Purposes of Medical Education*

DONALD B. TRESIDDER
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It is a pleasure to appear again before the Association of American Medical Colleges for an exchange of views on the subject of medical education. I am well aware, however, that you do not actually expect me to talk on any large part of that very large topic, the "aims and purposes of medical education." Whole volumes have been written on this subject in recent times. I shall, therefore, attempt no more than the examination of a few important considerations which, in my view, are applicable to it. I recognize that this course results in over-simplification. Moreover, in the very nature of the case, I am compelled, in approaching these considerations, to elaborate on the obvious and to retrace some wholly familiar ground. I mean, nevertheless, to limit myself to six propositions—propositions which might properly be called articles of belief.

I believe that:

1. The essential purpose of medical education is to serve society responsibly and to the fullest extent of any given institution's competence, facilities and resources.
2. The primary responsibility for medical education rests with the universities and the constituent members of the Association of American Medical Colleges.
3. Notwithstanding the brilliant achievements of American medicine during the past century, it still fails in important respects to meet the needs of our society.
4. We require, therefore, an exhaustive re-examination of both medical and premedical education.
5. It is neither possible nor desirable to develop a program equally applicable to all the medical schools in the country.
6. An institution possessing a distinguished faculty, first rate students, adequate resources and an administration with educational insight, fortitude, courage and persuasive leadership, may safely be left to determine the aims and purposes of its medical program for itself; in seeking to do so it should be afforded the widest possible latitude.

This is my entire position. I find it impossible, however, to elaborate on these principles or to forecast the future of medical education without first reviewing where we have been as well as where we are today.

What a distance we have come in medicine since the apprentice system of colonial times, when a typical medical student was described by Chesney as "one son of the family thought too weak to labor on the farm, too indolent to do

*Read at the Fifty-eighth Annual Meeting of the Association of American Medical Colleges, held in Sun Valley, Idaho, October 27-29, 1947.

any bodily exertion, too stupid for the bar, too immoral for the pulpit." By the close of the Civil War, medical schools had assumed an important position, but President Eliot of Harvard described the instruction thus: "The total period of required school attendance for the degree of Doctor of Medicine did not exceed, in the best school, three winter terms of four months each; . . . The main means of instruction were lectures. . . . The lectures were repeated year after year with little change, and no graded course was laid down for the student to follow during the three consecutive winters." According to President Gilman of Johns Hopkins, the typical medical students of this period were "young men who could not enter the lowest class of a respectable college."

The need for drastic reform in medical education was clearly evident, and our leading institutions took the initiative. At Harvard, President Eliot led the movement. Dr. Oliver Wendell Holmes has given us a revealing glimpse of the opposition encountered in the medical faculty itself. "'How is it, I should like to ask,' said one of our number the other evening, 'that this faculty has gone on for eighty years, managing its own affairs and doing it well,—for the Medical School is the most flourishing department connected with the college, (sic)—how is it that we have been going on so well in the same orderly path for eighty years and now, within three or four months, it is proposed to change all our modes of carrying on the school. It seems very extraordinary, and I should like to know how it happens.'

"'I can answer Dr. ———'s question very easily,' said the bland, grave young man: 'There is a new president.'"

At Harvard, the Medical Catalogue for 1871 stated, "The attention of all interested in medical education is called to the fact that the plan of study has been radically changed." The results of the reform at Harvard were quickly discernible. In 1870, only 58 out of 301 students held Bachelor Degrees. By 1874, 62 of their 175 medical students were Bachelors or Masters of Arts.

The founding of the Johns Hopkins Medical School in 1893 was described by Flexnor later as "the most important single event in the reconstruction of American medical education." For the first time, the A.B. degree was made a requirement of admission. The practice of employing full time instructors in anatomy, pharmacology, physiology and pathology was instituted. New courses were introduced in the curriculum and new emphasis was given to improvement of teaching and medical research. The early faculty at Johns Hopkins richly deserves its fame, but the prescient leadership of President Gilman added greatly to its accomplishments.

The restrictions of time forbid a roll call of all the pioneers in the reform of medical education. Pepper, at Pennsylvania, and many others in our colleges and universities made valuable contributions to it in this early period.

In recent decades, the medical profession itself has played an important part in improving the quality of medical training and practice. Starting in 1906, the American Medical Association through its Council on Medical Education and Hospitals made several surveys of medical schools. These had an

appreciable effect in raising the standards of hospital care and in improving the quality of medical training. The Weiskotten report of 1934-1936 disclosed the progress made in the last 30 years and also drew attention to weaknesses which still needed correction.

The well known "Carnegie Report" of 1910 and the direct financial support of large educational foundations have also had an important part in raising the standards of both undergraduate and graduate medical education in the United States. By 1938, 65 per cent of the medical graduates in the United States had baccalaureate degrees, and 93.4 per cent of 12,131 applicants had three or more years of college work. In 1906, there were only 67 per cent who had three or more years of college work. According to Morris, "As late as 1900, there were only 150 clinics with facilities for teaching in the United States, but in 1925 more than 5,000 were listed." The internship became recognized as an indispensable part of the preparation for the practice of medicine.

To summarize, the two outstanding developments in medical education during the past century were, first, an improvement in the quality of medical students and, second, a marked increase in the quality of medical instruction. Without in any way detracting from the great credit due the American Medical Association and the foundations, it is a significant fact that these two developments were largely due to the initiative and actions of colleges and universities. It is even worth mentioning again that some university presidents themselves gave the movement bold, vigorous leadership.

Today the quality of medical education in the United States is unsurpassed anywhere in the world, and the medical profession enjoys a phenomenal prestige. Every citizen has had direct knowledge of some phase of modern medicine and surgery. It is commonly accepted that our graduates are well trained. Why, then, is there so much discussion of medical education among educators and laymen alike? It is generally recognized, of course, that in times of great crisis or after an exhausting war there is a strong resurgence of interest in education. Thus, at the close of the Cromwellian wars, Great Britain invited the celebrated Czech educator Comenius to assist in "the reform of schools in the whole kingdom; namely, that all young people should be instructed, none neglected . . . nothing is, therefore, more necessary for the stability of the world, if it is not to perish completely, than some universal rededication of minds." Similarly, in recent years throughout the civilized world education has been subjected to the keenest scrutiny because we cling tenaciously to the belief that it can go a long way toward averting further catastrophes if only we can make it more effective and confer its benefits equally.

However, the renewed interest and critical appraisal of education generally does not entirely explain the growing impression in this country that in some vague way the medical profession has failed to keep pace with the times. There is a sound basis for this impression, and though it does not suit my present purpose to consider all of its aspects, I do wish to single out two weaknesses—weaknesses by no means confined to medical education, but nevertheless of crucial importance to the future of American medicine.

First, many of our graduates are, indeed, well trained technically but are poorly educated. Not only have we failed to provide them with a broad, general education, but all too many of them are deficient in the primary art of communication. One need only read current medical literature or listen to the discussions at this conference to become convinced of this deplorable fact. In this criticism I include myself, as a product of our present system of training. In my present position, the difficulty of communication harasses me at every turn.

This weakness is a reflection of the parlous state into which general education has fallen. As one authority puts it, "they (the students) have been diversified and specialized to such a degree that they have no common knowledge, no common skills, no common habits, no common attitudes."

Secondly, many of our graduates do not possess an adequate understanding of the social problems of our complex modern society and fail to realize the extent of their own social responsibility. This defect to a considerable degree reflects a serious deficiency of all higher education today.

I must repeat that while these weaknesses are by no means confined to the medical profession, the doctor's role in society is such that they have a special significance for us. Their cause is deeply rooted in the very nature of our western civilization. We are witnessing the culmination of an industrial revolution which has been in progress for more than two hundred years. Hand in hand with this change has come the rise of science, technology and the age of machines. As a natural consequence, there has been a tremendous increase in the variety and complexity of jobs. To meet the demand for specialized technicians, vocational and professional training became one of the most important objectives of education.

It must be remembered that universal education has always been a fundamental American concept. Our rise to become the most powerful industrial nation on earth has been accompanied by a rapid increase in population and a tremendous expansion of our educational system. Thus in the years between 1870 and 1940 our population trebled, while high school attendance increased 90 times and college attendance increased 30 times. At present, high school attendance is doubling about every decade. Our colleges and universities are bursting at the seams with an estimated 2,700,000 students. This trend is expected to continue far into the future. The demands for more vocational and professional training are ever more acute. To develop an effective, coherent program of general education under these circumstances is a problem of the first magnitude. How simple by comparison Plato's "education for goodness" seems, or even the task of the colonial colleges to educate an elite to be Christian gentlemen. Yet it is well to remember that by 1850 these early colleges were threatened with collapse because they had not responded quickly enough to the insistent demands of science and vocationalism.

It is in this setting that I turn at long last to a brief consideration of some of the aims of medical education. I cannot emphasize too strongly that in the future as in the past, we must look to the universities and medical colleges and

to them alone for any significant improvement in medical education. Theirs is the primary responsibility. Our problems today are not those of 1870 or 1906 or even 1934. High standards have now been established and a sound foundation for medical education has been laid. The time has now come to arrest the growing trend toward inflexible standardization of all our schools, in order that each institution may capitalize on its own rich experience and unique opportunities. Each institution is strongly influenced, as well as limited, by its past history, its geographical location, resources and present leadership. Necessarily, therefore, it is undesirable for every school in the country to attempt to follow the same pattern of medical training. The right of a faculty to determine its own educational policies and its freedom to carry on educational experiments without interference or restraint are indispensable to the future of American medicine.

This freedom to pursue its own educational philosophy within the limits imposed by the public welfare is one of the distinguishing characteristics of a university, and there is too little realization of the extent to which our cherished right is at present being endangered. The steady trend toward uniformity and the adoption by associations, societies, licensing boards and others of arbitrary standards designed to measure competence have progressed to the point, in some instances, of jeopardizing our ability to act in our own best interests. I freely concede that all of these organizations have the laudable aim of raising the standards of professional competence or of protecting the public interest. I accept their assurances that they have no wish to interfere with an institution's right to determine its own educational ends, but we are not concerned here with the high aims of these organizations nor with their acknowledged value in raising educational standards. The point is that, as a byproduct of some of their activities, an undesirable restraint is often imposed upon universities and colleges.

The specialty boards provide an excellent illustration of what I mean. I have every sympathy with their original purpose, namely, to award a certificate as a mark of distinction to doctors who have, on their own initiative, specially qualified themselves. There was no idea of compulsion nor of penalizing a doctor who did not choose to qualify himself.

In actual practice, however, the noncertificated doctor is often at a serious disadvantage. We are all familiar with the fact that a doctor must be a diplomate of a specialty board to belong to the staff of the veterans' hospitals. Many hospitals, as well as government agencies, require a board certificate before a man can visit or operate or have charge of special clinics and laboratories. As a result, it is to be noted that graduates of medicine often show more concern with meeting board requirements than they do with following their own natural talents and desires in study and research.

Since most of the boards demand three or four years of house staff work, there are no longer enough places to go around. There is a real danger that aggressive, plausible men may work into house staff positions to the exclusion of those of greater ability who wish to follow the less standardized course in

the way of research or preparation for teaching or practice. It is my impression that the house staffs in teaching hospitals are in the way of becoming "cramming" schools for the boards.

The medical schools, so far as I know, do not yet require faculty members to be certified by an outside board, but, again, it is my impression that a man is at a disadvantage in many places if he is not a diplomate of a specialty board, and students have been known to protest because they were being taught by nondiplomates. In faculty discussions of medical education, it is not uncommon to hear the comment, "Oh, we could not do that because it would not meet the requirements of the board."

Obviously, not every doctor can be a diplomate of a specialty board, and, yet, general practitioners apparently feel at such a disadvantage that it is now proposed to set up yet another board to certify them. If this is done, we shall have come the whole circle, although the very absurdity of such a position may, in the end, place the board movement in its true perspective. I had always assumed that the graduate of a good medical school was a superior citizen—honest, conscientious and adequately trained to begin general practice. If he is not capable of recognizing his own limitations, and if his training has not qualified him to continue to study and expand his knowledge and experience on his own initiative, then medical education has completely failed in its purpose and no amount of certification will help matters.

Let us turn to another illustration. It is to be expected that professional societies should set up standards and criteria as a basis for individual or institutional membership. In the beginning, these are generally based on broad principles permitting considerable flexibility in interpretation. Inevitably, as time goes on, such organizations turn more and more to specific, inflexible standards which emphasize prescribed patterns of courses, years of formal study, qualifying examinations, etc. All too frequently county, state and federal agencies seize on such criteria, either embodying them in regulatory laws or prescribing them as a qualification for participation in their respective programs. It is by this route that nurses' education has passed out of the hands of the colleges in many states. By permitting the trend to continue we are forging our own shackles.

Helpful as the accrediting work of some of our self constituted agencies has been in the past, their activities have now progressed to the point where faculty and administrators alike are constantly harassed by lengthy questionnaires, surveys and institutional visits which distract us from our real problems. One able and enthusiastic surveyor reports, "Schools were evaluated, department by department, and were told in detail wherein their program was strong and where it was weak." I see little hope for medical education if the implication of this remark is true. An administration not acutely aware of the strengths and weaknesses of its own departments should promptly be tossed overboard. In further support of accreditation, I have heard it urged on several occasions that a survey provides departmental faculties with a powerful weapon for forcing the president and the board of trustees to correct deficiencies. What sheer

nonsense this is! The first duty of the president and his board is to hold an institution to its own high standards. New courses, additional undertakings and unforeseen demands constantly press on the administrator and his board. There are never enough funds to meet all these requests. But a board of trustees which requires coercion to act in the best interests of its own institution is hopeless, and no amount of intervention from the outside can save it.

I urge the universities and the Association of American Medical Colleges to move promptly and decisively to regain the initiative in medical education which they have lost. We should continue to welcome any outside support which truly serves to improve and strengthen the quality of our educational program, but we should unite in stubbornly resisting all activities, except those required to protect the public interest, such, for example, as those designed to eliminate "fly-by-night" colleges. Those not obviously necessary in the public interest restrict the right of an institution to determine its educational policies for itself, and so cramp and hinder it and tend to destroy its unique usefulness. As a first step, I propose a moratorium of indefinite length on institutional or departmental accreditation, questionnaires and surveys, except for newly established schools under questionable management, thereby permitting us to concentrate on our real problems for a change.

Returning to our main theme, I suggest that we have been spending too much time talking about the wrong things and asking the wrong questions. At our Detroit meeting in 1944, I listened to hours of discussion about whether the intern year should be a requirement for graduation. From where I sat, this debate was peculiarly unrewarding since it was conceded that both the schools requiring an intern year and those not requiring it were turning out fine doctors. There are some urgent problems which are common to us all. Let us focus all our energy on seeking solutions for them, putting first things first.

The acute shortage of first rate teachers and research scholars is well known. What are we doing about it and are we doing enough? I shall pass over the need for research men, great as it is, because I believe that the shortage of competent teachers is even more critical. In fact, they are so scarce that we have taken to "raiding" each other on a scale that is certainly undesirable. There is no escaping the conclusion that to achieve our future aims we must greatly intensify our efforts to attract and train a new type of teacher.

Although the ideal requirements for a teacher cannot be found in one person, we must at least know what we seek and diligently pursue the quest. I envisage first of all a responsible citizen of rugged integrity and stamina, one with a superior intellect. He must be eager, imaginative and persuasive, with a high degree of competence in his own field. His training, however, must have been broad enough for him to relate what he teaches to other fields of knowledge. I am long since weary of the words, but the ability to correlate and synthesize is important for our purposes. I know that doctors are particularly prone to ridicule the notion, but I am convinced nonetheless that a teacher can greatly enhance his effectiveness by a close study of modern teaching techniques

and methods. Finally, our teacher must have a love for youth and a patient, tolerant understanding of it. He must have a keen insight into the social and economic questions of our time, tempering his sober realism, however, by cherishing what Dr. Livingstone describes as "an habitual vision of greatness."

This brings us to the other essential element in our plans—the student.

Much has been written about the large number of good students who must be refused admission to medical schools. I have a different view of it. My impression is that we do not have enough highly gifted students to fill our present quotas. The serious deficit now is topnotch teachers, research workers and practitioners. Such a need can be met only with topnotch students. It cannot be met with average men. A dozen of them do not equal one first rate man.

Medical schools have a superior record in the selection of students. Nevertheless, there is room for marked improvement, and this Association has the opportunity to take the lead in reforming our methods of selection. Undeniably an applicant's grade point average, aptitude score and record of formal courses are all helpful criteria, but have we not come to place too much reliance on them? Much more consideration should be given to testing the knowledge and ability of students in stated areas. We know, too, that our present formal tests do not adequately reflect two of the most important attributes we seek in our students—incentive and emotional stability.

There are minimum requirements for applicants which must be met,—character, exceptional ability, sound health, strong incentive and emotional stability are all essential. The ability to communicate ideas accurately and understandably is an indispensable must. The applicant should already possess a considerable body of systematic knowledge, but it is equally important that he should have learned how to acquire facts and interpret them correctly. With these facts in hand he should be able to develop a plan of action with several appropriate alternatives.

In college, the student should gain knowledge from experience as well as from books. His acquisition of social skills under present day conditions cannot be left to chance. Frequently, the premedical students constitute a special group which is confined to one side of the campus with little or no participation in the activities and broad purposes of the university as a whole.

That even our medical graduates are seriously deficient in some of these respects has been noted earlier. We must not content ourselves with deploring the state of general education. Frankly, we have considerable responsibility for the condition. We have either refused to concern ourselves with undergraduate work in college at all, or our participation in it has been haphazard and circumstantial. By our insistence on strict adherence to definite patterns of courses at the college level as a condition of admission to medical school, and by our attempt to define in detail the amount and character of preprofessional training, we have contributed considerably to the growing chaos in general education. Furthermore, many students know that they are destined for medicine from the day they enter college. Realizing how difficult it is to gain admittance, they

are likely to concentrate upon physical and biological sciences, even using a considerable portion of their electives for additional science courses, where such a practice is permitted. Many faculty advisers to premedical students are themselves specialists in some narrow scientific field. All too often, they lack broad culture and social viewpoint. They are competent to guide the student through science and the premedical requirements, but they are not competent to cooperate in giving a premedical student a sound general education.

Given a distinguished faculty and first rate students, what should be their educational experience? The first step is to set the faculty to concentrating on the needs of students. Since the four undergraduate years and the four years in medicine are a continuous part of one educational process, I should like to see the medical faculty participate in the guidance and education of the student throughout this entire period. Every course in the curriculum for this eight year period should be subjected to expert, critical scrutiny. The medical faculty should be joined in this inquiry by competent men from the social sciences, the humanities and the natural sciences. It is to be hoped that faculty and administrators participating in such studies will be given sufficient relief from regular duties to enable them to reflect, to weigh alternative choices, and to separate the truly important considerations from a sea of trivialities and departmental prejudices.

In this connection, there is no reason to be stampeded by the difficulties arising from the vast increase of medical knowledge. Much of what we accept today may be proven either false or useless a few years from now. It is not our task to provide the student with competence in all the techniques, facts and theories of medicine that are current at any given time. We must constantly keep in mind that not everything the student needs to learn must—or even can—be taught. The most we can hope for is to teach him to observe, to reflect, to interpret, to think effectively about what he knows, and to act responsibly in what he does.

The foregoing is not intended as a denial that new subject matter should be introduced whenever it is necessary to our purposes, but I am dismayed by the amount of time devoted to the discussion of additions to the curriculum by comparison with the amount of time given to a consideration of whether the existing curriculum of premedical and medical study is fully responsive to our needs. With every addition to a field of knowledge, we introduce new courses without at the same time examining all the courses we have been teaching over the years to determine whether or not they continue to serve the purposes for which they were designed. In my view, the curriculum should be under continuous scrutiny and always in relation to the major objectives of medical education.

I have left the most important consideration of all to the last. Our fortunes are inextricably linked to those of our society. All our little plans will fail if we do not inculcate in our doctor for tomorrow an insight into the problems of our free society and the extent to which his own future activities will be fraught with public interest. Our generation has witnessed the culmination of

an industrial revolution fully as significant to civilization as the one which followed the invention of the art of writing five thousand years ago. As a result, we now have on the one hand the power and knowledge to enrich mankind beyond all our dreams. On the other hand, it is clearly evident that by the misuse of this same power and knowledge we can destroy ourselves.

It is particularly important for us to understand the economic and social ailments which have accompanied our industrialization. Extensive social disunity, mass unemployment, widespread confusion and frustration are characteristic of the times. Largely in response to these acute difficulties, Americans have adopted certain social aims which they are determined to realize even at the cost of state coercion if no voluntary means can be found.

Americans demand security in old age, fair pay, steady employment, healthful working conditions and adequate medical care. In these undertakings the doctor is cast in a significant role. The treatment of disease has always been his function. In the future, he will have a growing concern with its prevention, with the establishment of healthful working conditions, and with improving the physical vigor and health of all our people.

We have been highly successful in teaching the public the value of expert medical care. We are also responsible for their belief that in sickness the hospital is the only place to be. Notwithstanding the great advances in medicine, there is altogether too wide a discrepancy between what the individual can afford to pay for medical care and what it actually costs. We can predict with complete assurance that medical benefits in the future will be more evenly distributed and that need, not ability to pay, will be the criterion. There is, however, all too little evidence that our medical profession as a whole has grasped the implications of this fact. If we persist in ignoring the clear signs on the horizon, statism is inevitable.

I have the strongest conviction that the first aim of medical education, aside from the development of professional competence, should be to give the student a clear understanding that from first to last he will have a great concern with social problems. He will be called on again and again to subordinate his own private interests to the public interest. The doctor, of all people, will require social skills and insight into social problems of the highest order. The acquisition of these skills cannot be left to chance, nor can they be acquired in medical schools alone. As medical educators, we must be concerned with education at all levels and lose no opportunity to participate in the broad purposes of our entire education system to the end that we produce competent doctors who are above all else responsible citizens.

Medical Manpower*

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Last February, in Chicago, when I discussed "Hospitals and the Health of the People," I ventured the opinion that we were producing too few doctors in the United States. Later, in conversation, several of the members of this Association disagreed. Your distinguished Secretary, Dr. Zapffe, suggested that I should elaborate my thesis here.

I accepted Dr. Zapffe's invitation and here I am. Perhaps I accepted unwisely, for as I think the situation over, I realize that you and I—each doing our best to brighten the corner where we are—are approaching the whole problem from distinctly different perspectives.

As a student of the health and medical problems of this country, and as a part of the organization which has helped to launch public action against one after another great cause of preventable illness and death, I have learned, through practical experience, that the greatest obstacle to progress on any health front has been the lack of health and medical personnel with adequate training and in adequate numbers. I look to you for help,—you, the deans of our great medical schools, who in one or another capacity constitute the legislative, the judicial and the executive authority over medical education. I pray devoutly that you may be moved to train enough good doctors to take care of the needs of the American people—many more able private practitioners as well as many more able men who may specialize in teaching, research and public health. Or, if you now have not the facilities and resources to give a good medical education to a larger number of competent men and women, I wish that you could be moved to declare with a loud voice that somehow, from some source, the facilities and resources should be provided for you.

We are living today in a period of "crisis psychology." In almost every field of human relations, we hear daily about the "crisis" in general education, in international relations, in economic affairs, in labor-management relations. In these circumstances, I hesitate to add further to the already large number of "critical areas" by saying that we are "facing a crisis" in medical education in the United States. Although I shall avoid such emotionally charged terminology, all of us here, I hope, recognize that our present system of medical education must be drastically re-oriented quantitatively, with no lowering of quality, if our medical schools are to meet the future medical needs of the American people. There are several reasons why I venture to discuss this problem with you and to seek your aid in formulating sound solutions.

Concern with medical education is no longer limited exclusively to the med-

*Read at the Fifty-eighth Annual Meeting of the Association of American Medical Colleges, held in Sun Valley, Idaho, Oct. 27, 28, 29, 1947.

ical educators and practicing physicians. Public attention is being increasingly drawn to shortages and maldistribution of doctors; to the financial difficulties involved in getting a medical education; in supporting medical schools of adequate quality; and the interrelationships between medical education, medical care and preventive medicine. Numerous citizens' organizations, interested voluntary health agencies, State legislatures and the Congress are considering the problem.

Perhaps, the foremost reason for this growing interest in medical education is the conviction on the part of large sections of the public that, in many areas, at least, there just do not seem to be enough doctors to go around! People have come to this conclusion not on the basis of statistical studies, but because they know it is difficult for them to get the medical care they want or need. They know that, in many parts of the country, particularly in rural areas, the ratio between available physicians and patients needing care is too low to provide adequate medical services and that the gap is widening. My own conclusion is that the gap will continue to widen and that we shall have an absolute nation wide shortage of physicians if the current rate of production continues unchanged.

We have a standard of medical education and a status in medical research in this country unequalled anywhere in the world. The same is true of our standard of living. Yet, we have not succeeded in distributing medical care equitably on either a geographical or an income basis. We still have far to go in making an equal opportunity for health, the birthright of every American. Unless as doctors you believe that each of us has some responsibility in helping to attain, or at least to approach these goals, there is little point in my discussion.

We are producing our present annual output of doctors in this country not by plan but by happenstance. The number has no relation to anything I can discover except the present physical and financial capacity of existing medical schools. It approximates the number produced one or two decades ago when production of doctors was related to the then effective buying power of our population and to the lower status of medical science.

To say that this country has the highest ratio per capita of any country in medical manpower, and, therefore, needs to produce no larger numbers is like saying the same regarding automobiles, radios, telephones and a host of other attributes of our economy.

It is commonly agreed that medicine in every country, in every age, is geared closely to the economic and social framework in which it operates. We have a free competitive system of medical service, because we live in a free competitive economic system. However, there is an important distinction between effective economic *demand* and medical *need* for physicians' services. At the pre-war rate of effective demand, with a national income one-third of the present, the total number of physicians may well have been sufficient, *but not now!*

Let us consider two yardsticks of need. They may not lead to the best estimates. If not, please let us agree on sounder bases. As the most simple yardstick, let us take the 12 States with the highest ratio of physicians to population.

More than one-half of the population of the country lives in these 12 States. Let us assume that on the average, there are not too many doctors in these States. If we bring the remaining 36 States up to the average of the upper quartile, we shall need from 50,000 to 55,000 more doctors by 1960 than there are in prospect. This would mean that we need almost to double the present output of doctors for a decade. Obviously, this cannot be done wisely since we could not readily close up the expanded facilities. Some middle road must, therefore, be explored.

In Chicago, last February, I estimated a prospective deficit by 1960 of 30,000 physicians if we produced the additional physicians needed to maintain the 1940 ratio of physicians to population; if we met the then announced requirements of the Army, Navy, Veterans Administration and the Public Health Service; if we provided the new health officers and physicians for projected mental and tuberculosis hospitals, and if we provided the additional physicians needed to staff the new general hospitals and health centers under the Hill-Burton Act. From these increased needs, I subtracted the prospective excess of graduates, of deaths and retirements by 1960, assuming the present number of medical schools and a rate of graduation of 5,200 doctors per year.

Since last February, at least two factors tend to reduce these estimates somewhat. The Army, Navy and the Veterans Administration seem to have reduced their requirements by some 3,000 doctors. Also, the present enrollment in freshman classes would indicate a prospective graduation of 5,600 doctors per year instead of the previously estimated 5,200. Also, the six newly authorized medical schools may produce another 3,000 doctors.

Dr. Victor Johnson and Dr. Fred C. Zapffe in a study published by the National Research Council in 1945, concluded that, on the basis of war replacements and the then estimated requirements of the Army, Navy and Veterans Administration alone, "the probable number of doctors needed after the war, in addition to numbers before the war, might be conservatively estimated at 35,000." Of these, the wartime program produced about 7,000 and the estimates were based on a much higher total requirement of the Army and the Navy.

Both the Johnson-Zapffe estimates of 1945 and my own of February, 1947, assumed only a prewar civilian demand in purchasing medical care, not the total medical needs.

We of the United States Public Health Service cannot escape a deep interest in a situation which may well lead to a lowering of the national health standard. We are vitally involved now in many aspects of medical education. We need additions to our own medical staff if we are to carry our new responsibilities in tuberculosis control, cancer control and mental health effectively, and attack such problems as heart disease and diabetes. Also, our efforts to increase State and local health services will be abortive if qualified physicians are not available to man these services.

The current obligations of the Public Health Service in research fellowships, research grants and training necessarily bring the Service into some contact with the academic aspects of medical education. Content of courses; availability of laboratory, clinical and library facilities; competence of instruction;—these and other factors in specific institutions, must now be considered by the Service through its Advisory Councils in awarding grants for training, research and teaching in the medical sciences.

Medical education qualitatively and quantitatively is only one facet of the whole problem of medical care. The quality and quantity of medical care in rural and low income areas is, generally, lower than in urban or wealthier areas. The rural and low income areas are under-supplied with physicians; the people of such areas are less able to pay the physicians who are available,—even less able to pay a hospital or surgeon's bill; many such doctors are not sufficiently informed on advances in medical science to use them in practice; frequently, facilities such as hospitals, laboratories and health centers are not at hand for their use. Few doctors are willing to practice in regions where they cannot be assured of a decent income, where they do not have adequate facilities enabling them to furnish care of a high quality, or where they are deprived of cultural contacts on which their professional progress depends, and even of educational opportunities for their children. Therefore, economic, scientific and cultural considerations are woven into the matrix of medical care and medical education.

The increasing cost of medical education to the individual student is making it more and more difficult for young men from families in the lower income brackets to become doctors, resulting in a narrowing of the sources from which additional medical personnel must be drawn. This trend has been reversed but only temporarily by the "G. I. Bill of Rights."

Even though average tuition fees for an academic year in American medical schools increased from \$378 in 1940 to \$459 in 1947 (about 20%), the financial situation of the medical schools themselves has been growing more and more unstable.¹ Budgets of the medical and basic science schools in the country for the academic year 1947-1948, exclusive of special research grants, total more than \$43,000,000. Of this total, no more than \$12,000,000 will be provided by students' tuition fees. The remaining \$31,000,000 or 70 per cent will have to come from other sources.¹ From the national viewpoint, gifts and endowments cannot be depended on to meet the steadily rising cost of medical education. If the schools are to continue to offer adequate medical training, they must have financial stability. This can be assured, I believe, only by public funds. Any such aid must ensure that the conduct of medical education in every school continues to be the responsibility of medical educators.

Most medical schools still devote too little time to teaching of preventive and social medicine. I use the term "social medicine" as embracing the social

1. 47th annual report of the American Medical Association Council on Medical Education and Hospitals.

and environmental causes of disease and methods of prevention. It is a concept eloquently described by Dr. John Ryle, Professor of Social Medicine at Oxford, and for which a teaching program is being developed by a committee of this Association.

In view of the lack of teaching preventive medicine in this country, it is understandable that too many practitioners still conceive of their art largely in therapeutic terms; that they make little attempt to integrate the techniques of preventive with those of curative medicine in their daily practice. In 1945, only 31 of the Nation's medical schools had established separate departments of public health; another 21 included instruction in public health in the curriculum of other departments; while in almost one-third of the schools there was no provision of any kind made for the teaching of this subject. The final report of the Committee on the Teaching of Preventive Medicine and Public Health of the Association of American Medical Colleges, published in 1945, stated that most medical schools still "do not feel that instruction in public health is important."

Medical education in the United States must reorient itself continuously in terms of participating in a broadening medical service. The specific lines along which such a reorientation should take place require thought and study. Nevertheless, some of the basic elements seem clear.

Implicit in the Hill-Burton Hospital Construction Act is the concept that the responsibility of the medical school should extend throughout the whole hospital area—from the central teaching center to the regional hospitals, rural hospitals and health centers. The Act also implies that the hospital construction program will evolve into a coordinated system of medical education and hospital service which should be closely related to the total public health setup of the State and community. In such a system, each medical school teaching center,—abandoning its historic academic isolation from the health problems of its community, would lead the total health movement of its area. Nowhere else is there equal competence, yet the needed funds are not available.

This close interrelationship of research, of undergraduate and postgraduate teaching, and of service was considered paramount in establishing a four year medical school at the University of North Carolina. It contemplates the construction of an integrated system—comprising medical teaching center, hospitals, and public health units—furnishing health services on a Statewide scale.

Successful examples of existing programs of medical care and education based on the concept of an integrated network of health services can be cited in the Bingham Plan, in which medical care in rural Maine is coordinated with the Tufts Medical School and in the Rochester, New York, regional plan, centered around the Medical School.

The new four year Medical College of Alabama seeks to achieve integration of medical school, teaching hospital, local health department, outpatient clinics, county hospital, and local medical society offices, as well as the offices of voluntary health agencies and living quarters for students, staff and hospital residents, by locating all in the same physical plant and uniting them functionally.

It seems clear that medical schools will have a larger role to play in the future health system of the Nation, that they will need larger budgets, and that they will need to produce more and better trained doctors. What is the size and the urgency of the job?

The most imponderable factor in future estimates of need for medical manpower is the rate at which the American people will purchase medical care on a prepayment basis. Prepayment is the method sponsored by the American Medical Association, by President Truman in two health messages to the Congress, by leaders of both political parties in the Congress.² The areas of disagreement are relatively small. They involve chiefly compulsory *versus* voluntary systems; medical control *versus* public control; Federal operation *versus* grants to the States; the income levels for the covered population. The great bugaboo of "socialized medicine" should by now be buried since there seems to be general agreement on the major issue of group prepayment for medical care.

My own reluctance during many years to endorse a complete and immediately operative system of prepaid medical care has been based on practical administrative considerations rather than on ideological grounds. Foremost among these practical considerations is that we do not have throughout the country the health personnel to provide for the paying customers and their families the medical services of good quality which they would expect by reason of their prepayments. We lack facilities also, but the Hill-Burton Act has established a national policy and pattern of action designed to correct this deficiency.

I think we must assume that there will be national health legislation of some type in the not too distant future, designed to make more medical care available to more people. It follows that this will require more doctors, dentists, nurses and other trained personnel.

The increased average age of our population will create more demand per capita for medical service. No one has as yet calculated the size of this increment.

Universal military training has been recommended by a competent Presidential Commission and strongly supported in the light of the present world situation. Many doctors would be needed for such a program.

Likewise, we must consider the probable passage of a National Science Foundation Act with substantially increased public funds for medical research. The Steelman Committee³ concludes that the lack of scientific manpower is "our limiting resource" in expanding a national science program. This committee recommends that we spend at least three times as much as we are at present on research in medicine. Although this committee has calculated the over-all number of additional science teachers for Ph.Ds., the precise number of additional M.Ds. is not estimated.

The Congress currently is appropriating to the Public Health Service a total of about forty million dollars for medical research, the bulk of which is

2. S. 1320 Senators Murray, Wagner, Pepper, Chavez, Taylor and McGrath.
S. 545 Senators Taft, Smith, Ball and Donnell.

3. *Science and Public Policy*.

for grants-in-aid for research projects in medical schools. We hope that our authority will be broadened to enable institutional support to be given for research,—in addition to project grants—and to enable us to aid in the construction and expansion of research facilities. We now have this authority in our cancer research program.

Some of our best medical brains are occupied on these research problems and, therefore, are not in the medical service pool. Of some significance too is the fact that in two neglected fields of medical teaching, the Public Health Service has been authorized to give block grants to medical schools to improve undergraduate medical training in cancer and in mental hygiene and to coordinate training and research in these fields within the school. Pending in the Congress also is a proposal that the Public Health Service should give grants to schools of public health to enable them better to prepare personnel needed in present and future health programs.

I feel sure that current fractional approaches to the total personnel problem create difficulties for you administrators of medical education. You have an opportunity to work with us, your servants in government, on the present task of hewing out the direction of sound governmental policy in the total fields of medical research and teaching.

To increase the number of medical graduates, several procedures might be adopted. New schools are now being established or have been authorized in six states. The medical school of the University of Washington has just opened its doors. New full four year medical courses have been authorized in the States of Missouri, North Carolina and California. In several other States, there is active planning for increasing medical education facilities.

Many existing schools might, if they were financially able to do so, increase their facilities and add to their teaching staffs so that they could accommodate more students, although many of these schools have a prior need for an increased faculty to provide adequate teaching for their present students. Some of our strong schools might even create surplus faculty to colonize elsewhere, giving stability through nourishing the colony with the traditions, as well as the knowledge of the homeland. In this, we could learn much from the religious teaching orders.

To broaden the source of applicants, scholarship programs might be established by the Federal or State governments to enable poorer students to compete for places in medical schools with those better situated financially.

Special attention needs urgently to be given to increasing the training facilities for Negro students now limited to two institutions, plus 8 to 10 Negro students per year who are admitted to other schools.

One means of increasing the proportion of doctors in rural areas would be to provide, through tax funds, special scholarships to students who will agree, on graduation, to practice in rural communities for a specified number of years. Maryland, Virginia, Mississippi and Indiana have laws to this effect,

and a similar one was introduced in the 1947 session of the South Carolina Legislature.

The Federal medical services currently are considering a system of scholarships for a sufficient number of medical students to ensure that their future needs will be met.

Even with an increased output of present medical schools, other methods are needed to increase the available quantity of medical service. These should include the more economical use of the doctor's time. Medical practitioners might use the services of medical technicians more widely in some of the more routine technical services, saving precious professional time for serious cases.

A great contribution toward higher medical standards could be made by the increased use of group practice. Group organization of medical practice on a wide scale, enlarging opportunities for consultation among doctors and specialists, by cutting down the cost to the individual doctor of essential equipment, undoubtedly could elevate standards of medical care. Group medical practice successfully reaching all sections of the population would have to be accompanied by prepayment.

Even with such economies in service, even by increasing the output of existing schools, even with the increment of currently projected schools, I do not believe we shall meet the quantitative needs. Moreover, as the costs of medical education continue to rise and larger private sources of funds for the support of medical schools do not appear, an agreement as to total need for physicians and the public aid required in the financing of their education seems necessary. It is on this central point that the Public Health Service seeks your counsel.

We should act with dispatch, since some early public actions seem likely. We need to reach professional agreement on the sound bases for such action. Such agreement was reached in formulating a national policy and program of hospital construction, which should provide needed health facilities.

Can we not agree also on a national policy and program designed to provide the needed health personnel? In doing this, we shall have determined for the first time the place of medical education in American life.

DISCUSSION

DR. VICTOR JOHNSON, Director, Mayo Foundation for Medical Education and Research, Rochester, Minnesota: In his paper Doctor Parran implies by a quotation that I am in agreement with his estimates concerning a possible shortage of medical personnel in the future. If Doctor Parran's current estimates are as bad as ours were two years ago, there is no need for further discussion. The figures to which he referred were presented in testimony before the Senate Military Affairs Committee urging passage of the Ellender Bill (supported by all but one medical school) which provided for the deferment of qualified premedical students. It came when the supply of premedical students was being cut off by the policies of the military forces and the Selective Service system. At the time of this Senate testimony, the end of the war was not yet in sight, and the estimates included large numbers of doctors for military needs. The unexpectedly early termination of the war and the unforeseen rapid demobilization of the military

forces have resulted in far fewer physicians being required for the military forces and even for the Veterans Administration than was anticipated earlier. Less than half of the numbers estimated for these services are now actually on active duty. Therefore, I am decidedly not in agreement with Doctor Parran's estimates.

Doctor Parran, and all the rest of us at this meeting, are vitally interested in improving the quality of medical education and medical care in this country. Unfortunately, I am afraid that his pronouncements concerning impending startling shortages of doctors may have exactly the opposite results. Statements such as his, coming from high authority, have aided and abetted reckless adventures in medical education without competent leadership, adequate facilities or sufficient funds. In the establishment of such decidedly inferior medical schools as Middlesex, Oglethorpe and Essex, there have been involved not only uninformed leadership and sometimes unscrupulous behavior, but also a sincere desire to seek to alleviate the alleged shortages of physicians in this country. Earnest citizens of Boston, Atlanta, and New York have felt they were working in the public good in supporting these inferior institutions. Doctor Parran certainly did not directly encourage the establishment of such schools, but indirectly his spectacular statements lend support to them and consequently threaten the quality of physicians produced to meet the alleged needs. It is far better to proceed slowly, as has been done by this Association and the American Medical Association in encouraging a few institutions to expand and others to commence operations as new medical schools when their leadership, facilities and funds seem to warrant. In such an evolutionary process in recent years we have seen expansions of two-year institutions to four year medical schools at the Bowman Gray School of Medicine in Winston-Salem, the University of Utah in Salt Lake City, and the University of Alabama in Birmingham. In addition, entirely new medical schools are in operation at the Southwestern Medical College of Dallas and the University of Washington in Seattle. Also the University of California at Los Angeles is looking to the opening of a new medical school in the immediate future. All these institutions have received every encouragement from responsible medical educators and organizations. Such developments are sound and will continue without sensational pronouncements from officials in authority; such statements may do more harm than good, despite the sincere desires of their authors to improve medical education and medical care.

DR. DONALD G. ANDERSON, Secretary, Council on Medical Education and Hospitals, American Medical Association: Doctor Parran has presented a stimulating paper on a subject that is of concern to the group assembled here and to our whole society. The question of how well our present facilities for medical education meet the needs of this country is one which must command our serious attention. We of the Council have a particular interest in this question because of the accusation that is frequently heard that the American Medical Association, through the Council on Medical Education and Hospitals, conspires to regulate the number of physicians produced in this country. It might be well at this time to state clearly for the record a fact that is well known to all in this room. Neither the Council nor this Association has ever acted to limit the number of soundly conducted medical schools in this country.

On the contrary, the Council and this Association have always sought to encourage and assist any new medical school that has given promise of developing a satisfactory program of medical training. I might cite as examples of schools that have received such support in the past decade the Medical College of Alabama, the Bowman Gray School of Medicine, the Southwestern Medical College, the University of Utah School of Medicine, the University of Washington School of Medicine and the University of California in Los Angeles.

The Council has looked forward to Doctor Parran's talk this morning with great interest because of his statement to the Congress on Medical Education and Licensure

last February that to meet the anticipated deficit of physicians in this country by 1960 we would need during each of the next twelve years to increase our medical graduates by fifty per cent. We must admit that this statement has caused us grave concern because of our fear that it would have unfortunate consequences. We have been concerned that it would unjustifiably undermine the public's confidence in the motives of medical educators and we have been concerned that it would encourage irresponsible groups in the establishment of sub-standard medical schools. It is not necessary to comment here that the establishment of such schools has constituted a recurring threat to medical standards in this country.

In anticipation of Doctor Parran's paper, we have reviewed our own statistics relative to the production, immigration and deaths of physicians and through Doctor Parran's courtesy we have had an opportunity to analyze his estimate of the needs of this country for physicians. As a result of this study, we are prepared to contend that the maximum deficit that could possibly be forecast for 1960 does not exceed 15,000 physicians, and that the actual deficit, if a deficit does occur, will probably be considerably less than this figure.

It should be pointed out that the rate of production of physicians in this country is far from static and that in the recent years there has been a progressive and significant increase in the size of our graduating classes. During the twenty year period 1920 to 1939, the average number of physicians graduated each year in this country was 4,256. For the eight year period 1940-1947, when nine classes were graduated, the average size of the graduating classes was 5,379. A figure of 5,500 would be a very conservative estimate of the average number of physicians who will be graduated each year for the next twelve years. Thus it can be seen that the annual production of physicians is now approximately 1,250 or almost 30 per cent greater than the average annual production during the period 1920 to 1939.

When we consider that Doctor Parran's figures provide for what he envisages as nearly ideal medical care and when we consider that estimates and hypotheses have of necessity loomed large in his calculations, then we believe it may fairly be said that our present and projected educational facilities are not so deficient as to justify the sounding of a general alarm.

We do believe, however, that an open mind must be maintained on this important problem until more objective evidence has been secured. I hope that it is not premature for me to indicate at this time that one of the cardinal objectives of the proposed survey of medical education as envisaged by the representatives of this Association and the Council is to determine the quantitative needs of this country for physicians and the extent to which present and projected educational facilities are capable of meeting this need. I am confident that if this study reveals that an expansion of our educational facilities is desirable all of us will join in urging and supporting this expansion.

In the interval, we believe and we hope that Doctor Parran will concur that the estimates that can now be calculated do not warrant dissemination of opinions that will encourage the public to exert pressure upon existing medical schools to increase their enrolments beyond the number of students that they can adequately train or encourage the public to clamor for the establishment of sub-standard schools of medicine.

DR. W. MONTAGUE COBB, Howard University School of Medicine, and the National Medical Committee of the National Association for the Advancement of Colored People, Washington, D. C.: The nation's largest minority has no desire to have its health problems considered apart from those of the country as a whole. Nor indeed, is it possible to dissociate from the national problem, the health conditions of particular population groups. The sum of arrangements which contribute to the health needs of Negro Americans, however, has been so inadequate as to warrant directed attention.

A recent pamphlet, "Medical Care and the Plight of the Negro," describing in sum-

mary fashion the total situation has recently been published by the National Association. Copies have been sent to the deans of all our medical schools, which possibly some of you have had opportunity to read.

I wish now to comment on one phase of the problem of shortage of medical personnel, namely, the present inadequate number of Negro physicians, and upon what seems the most obvious and practicable means of increasing their number—increased admissions to our 76 medical schools other than Howard and Meharry.

As compared with the present national ratio of physicians to population of 1 to 750 and the accepted minimal safety standard of 1 to 1,500, the national average of Negro physicians to Negro population in 1940 was 1 to 3,377, ranging by states from 1 to 1,002 in Missouri to 1 to 18,527 in Mississippi, and this ratio is not improved today. The comparison of ratios on a racial basis is made only for practical utility in demonstrating a need. There is no implication that Negro patients should be served only by Negro physicians or that Negro physicians should treat only Negro patients, as the right of a patient to choose any physician and of a physician to treat any patient is fundamental.

Only about 145 Negro physicians are graduated annually, representing the combined Howard and Meharry classes plus about a dozen graduates from northern and western institutions. This number is wholly inadequate both for present needs or for keeping pace with population growth.

Attention to every level of education prior to medical school will be necessary to remedy the situation. Howard this year had 1,351 applicants for 74 places and Meharry about 800, of whom 55 were admitted, but of the large number of applicants who were not accepted only about 200 approximated the qualifications of the accepted group. This means that properly qualified applicants are not the average product of the segregated institutions in which the majority of these students receive premedical training and derives from the handicaps of teaching personnel, facilities and financial support under which most of these institutions labor.

New separate professional schools are not an answer, for reasons stated in the pamphlet mentioned. The simplest, fairest and most practicable immediate measure is increased admissions of colored students to the additional medical schools which collectively have responsibility for training physicians to care for all Americans. Howard does not limit its student body to one racial group.

Some of the deans of northern and western schools have at this meeting indicated that their institutions admit colored students and would be willing to admit more if better qualified applicants appear. These expressions are accepted in good faith and with appreciation. While it is true that well qualified applicants are not as numerous as would be desirable, suitable material for many additional openings does exist and a special effort will be made to stimulate and guide applications to the right places.

Time and multilateral effort on many fronts will be necessary for remedy of the whole problem, but it seemed wise to bring the educational difficulties to the attention of the Association of American Medical Colleges at this time. From no higher source could leadership in careful exploration of possibilities and progressive effort for improvement be expected.

DR. JOSEPH C. HINSEY, Cornell University Medical College: We are grateful to Doctor Parran for coming to this meeting to present his paper in which he has given his estimate of the future needs for medical personnel. We want to assure him that the members of our Association are open minded about this problem. We do want to be as certain as possible what the actual needs will be. Doctor Parran would, I am sure, agree with us that we do not want to educate a group of poorly trained physicians and produce a large excess over the actual needs of our society. We must not only maintain our present

standards but improve them as best we can. From July 1, 1937, to June 30, 1942, 25,818 physicians were graduated and during this period some 18,988 died. The net increase in the total number of physicians during this 5 year period was 6,920. During a similar 5 year period from 1942 to 1947, 32,877 physicians were graduated and 16,435 are reported as having passed away. Thus during the last 5 year period there was a net increase of 16,442. The accelerated program accounted for 7,059 of these additional doctors, but when this is taken into account there still would be an excess of 9,376. Thus it is evident that there was a greater increase during the last 5 years than in the previous period. When we take into consideration that new four year schools have been started, and others are in contemplation, it would seem safe to predict that a greater number would be trained during the period of years up to 1960. There is strong indication that the ratio of physicians to population will continue to improve on the side of increased medical personnel as years go on. We are hopeful that the survey which is to be made will give us a better indication of what the future needs will be than any data which we have available now. We can assure Doctor Parran that the medical schools of our Association stand ready to meet their responsibilities in the light of the information which will be forthcoming from the survey.

Comments made at Hearing Before the New York State Commission on the Need for a State University*

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The aim of everyone interested in the well-being and health of the citizens of this state is to see, as far as possible, that adequate medical care is provided for the entire population, its different economic groups as well as its geographic units. Modern medical care can be made available only through physicians, hospitals, diagnostic facilities, nurses, dentists, public health personnel and others trained and qualified to conduct such services. One of the most important factors in the availability of proper medical care is the distribution of physicians. The present distribution of doctors in the country, and in this state as well, is faulty.

Physicians trained in modern methods of medical care are dependent for satisfactory practice upon adequate facilities in which to carry out their professional activities. These facilities are largely in the nature of hospital and laboratory provisions. New York State with others has joined in support and is working out plans under the U. S. Senate Hill-Burton Bill which in due time will make up-to-date medical facilities available in the small communities and rural areas of the state. When this is accomplished a more satisfactory distribution of physicians will be possible.

Another important aspect of medical care relates to the financial cost of such services. There is general agreement that the way to meet the unpredictable and uneven financial burden of illness is through some plan of insurance, with particular emphasis upon voluntary prepayment methods which would provide adequate medical service for the entire family. This economic aspect of medical care is highly important in the provisions for every community.

Associated also with this whole problem is a better understanding of what adequate medical service means today as contrasted by what could be provided by conscientious physicians even 25 years ago. The amount of knowledge required for medical care today is far in excess of what any individual can master, hence specialization has resulted. This has been overemphasized in some instances and specialization must be integrated for the purpose of providing complete medical care. The growth of medical knowledge and of experts in certain fields is leading inevitably to the development of group practice as the modern way of practicing medicine and of providing up-to-date scientific medical care for any population group. The medical schools are teaching that type of medical practice and must of necessity be preparing young physicians not to practice medicine as it was 25 years ago but as it will be practiced in the future. The emphasis in all such teaching and preparation is upon comprehensive medical care for the entire family and with particular stress upon the various aspects of prevention of illness and disability.

*October 20, 1947—Albany, N. Y.

A satisfactory medical care for all of the people of the state is related also to the numbers of physicians who are available. In the United States at present there are about 195,900 doctors, making a ratio of about 1 to 719 persons, quoting a 1947 study made by Selective Service Headquarters. In New York State there are about 28,000 physicians according to the report submitted to the commission, which gave a ratio in this state of about 1 doctor to 511 persons in 1940. In New York City that ratio was 1 doctor to 410 persons. In a number of situations in industry and elsewhere where satisfactory standards of medical care are provided it has been shown that such services can be rendered on a basis of 1 doctor to 1,000 or 1,200 individuals. The Health Insurance Plan of Greater New York, after thorough study of this whole problem and the inclusion of a good many preventive services, has arrived at a ratio of 1 doctor to 800 individuals. Attention is again called to the fact that in New York State there is 1 physician to 511 persons. One can only draw the logical conclusion that the number of licensed physicians in New York State is at least sufficient to take care of the needs. The difficulty, however, is in the defective distribution of those physicians and their inadequate utilization. It is true that there are shortages in certain specialties such as psychiatry, pediatrics, public health and certain laboratory fields, as illustrations, but these inadequacies will be corrected just as soon as the opportunities and inducements in such fields as psychiatry and state hospital service can be improved and hence attract qualified physicians into these fields of medical service.

Your attention may be directed to the fact that a large number of young physicians who have been in the war have not yet established themselves in practice. At the present time there are more than 20,000 of these doctors in the hospitals of the country, many of them seeking postgraduate and reorientation training. A great many of the physicians who were in the Army and Navy and other services during the war had very little medical responsibility and hence lost a considerable degree of their confidence, skill and technical information. The studies made by your staff indicate that of the 28,000 physicians in New York State about 13,000, or nearly half, were educated in medical schools outside the State of New York. At the same time about 6,000 New York trained physicians are now practicing in other communities. It is evident therefore, that a large fraction of the practicing physicians of New York State have been educated at an expense to the State of New York or the educational institutions in this state.

Those who have expressed concern over the current and future supply of doctors in the United States should bear in mind that between July 1, 1937, and June 30, 1942, the number of medical graduates from schools in the United States totaled 25,818. During the same five year period 18,988 doctors died, leaving a net increase in the profession of 6,920. During a subsequent five year period between July 1, 1942, and June 30, 1947, 32,877 doctors were graduated and 16,435 died, leaving a net increase in the profession during that period of 16,442. In the year 1947 the number of physicians graduated was 6,959 and the number who died was 3,358, a net increase in the medical profession of

3,601 in that year alone. These figures are partly in answer to the statements made by the Surgeon General of the United States Public Health Service that if the present training program remains the same there will be a deficit of 30,000 physicians in this country by 1960, and that in order "to meet this deficit by 1960, we would need during each of the next twelve years to increase our medical graduates by 50 per cent," as quoted by your research staff.

In regard to the future supply of physicians for the country the studies made by Selective Service indicate that on the basis of present enrolments there will be 209,300 doctors in 1950, a ratio of one physician to about 695 of the population. Studies made a few years ago by the Commission on Medical Education predicted that on the basis of 5,600 graduates per year there would be about one doctor to 690 persons in 1980. Please note that during the current year the number of graduates from approved schools will be about 5,716. There are reasons to believe that in the next 20 years the ratio of doctors to the population will continue to show an increasing number of doctors in relation to the population. This makes no allowance for the possible output of new medical schools and the licensing of foreign graduates in this country.

Speaking of additional medical schools, attention should be called to the fact that Southwestern Medical School, the University of Alabama, the University of Utah, the Bowman Gray School of Medicine, the University of Washington and the University of California at Los Angeles are going forward with new four-year medical schools. There has also been active discussion during recent years of building up the Schools of Basic Medical Science into full medical schools at the Universities of Mississippi, South Dakota, North Dakota, North Carolina, Missouri and West Virginia. There has also been discussion of the creation of two medical schools in Florida, one in Montana and preliminary talks of schools in Connecticut, New Jersey, Maine and Massachusetts.

In further discussion of this same topic attention should be called to the fact that the ratio of physicians to population in Great Britain previous to the war was one doctor to 1,490 individuals; in Germany, one doctor to 1,560 individuals; in France, one doctor to 1,690 individuals; in Norway, one doctor to 1,760 individuals; and in the Netherlands, one doctor to 1,820 individuals. In all of these countries where medical service has been reasonably adequate there are one-third as many physicians per unit to population as in the State of New York. The point was also made that a supply of physicians in excess of what is actually needed for rendering competent medical service has, in the long run, a deleterious effect on the quality of medical care rendered because of the lowering of standards in a field where competition cannot be controlled or where the quality of service can not be evaluated by laymen.

So far as the future supply of physicians is concerned attention was called to the fact that in the 70 approved medical schools in the United States the total number of regular first year students in the year 1946-47 was 6,037. In addition there are seven Schools of Basic Sciences which enrolled 220 regular first year students. The entering classes of medical students therefore total 6,257. Several schools with additional classes have increased the total by 307. Since there

were probably about 18,000 individuals applying for admission, approximately one-third were accepted. It is said that nearly 20 per cent of all applicants in the country are from New York City.

On the matter of applications report was made to the effect that in 1946 at the College of Physicians & Surgeons 592 applicants were received from the City of New York of whom 48 were accepted. From New York State other than New York City there were 149 applicants of whom 11 were accepted, a total of 59 from the State of New York. From outside of New York State there were 813 of whom 52 were accepted. The totals showed 1,554 applicants and 111 acceptances. Corresponding figures for 1947 show 511 from New York City of whom 41 were accepted; 200 from New York State outside the city of whom 17 were accepted; and 1,477 from outside the state of whom 68 were accepted. Of the 126 accepted 114 were actually enrolled out of the 2,188 that had applied. About 15 to 18 students are accepted each year from New Jersey and about one-third of that number from Connecticut.

Medical students at Columbia University are accepted without regard to race, creed, color, national origin or domicile, and only on the basis of their qualifications and promise to become competent, ethical physicians. That this is the established policy of the College of Physicians and Surgeons is amply shown by the complete transcript of the hearings of the Special Investigating Committee of the Council of the City of New York which has been put into the hands of the Commission.

The total capacity of the first year classes of the medical schools in New York is around 800. Last year the total number of residents of the State of New York matriculated in the first year classes of medical schools was 863. Approximately 51 per cent of that group was enrolled in schools in New York State. At the present time somewhere in the neighborhood of 3,000 students residing in New York State, mostly in New York City, apply each year for admission to medical schools. Something less than 1,000 are admitted, leaving about 2,000 who are not accepted. It was pointed out that even if a half of these students are not fully qualified, it still leaves in the neighborhood of 1,000 who are qualified and cannot obtain admission. Obviously if medical schools were to be constructed or contemplated to meet the pressure from students' applications it would be necessary to figure on about 10 additional medical schools in the state, on the assumption that adequate standards of medical training would require limitation of first year classes to approximately 100 students per class. These figures are cited to emphasize the great pressure from below to provide opportunities for medical education for great numbers of applicants.

In an endeavor to correct a common impression that a medical school is concerned solely with the training of undergraduate medical students, comment was made regarding the broad functions of a medical school. In addition to undergraduate medical students the modern medical school must provide substantial facilities and instruction to graduate medical students, particularly hospital residents. At Columbia University this group in the Medical Center and affiliated hospitals totals about 370. Keeping the medical profession abreast

of current developments of medical practice and science is another large responsibility of a good medical school. At Columbia University, for example, postgraduate courses were given to 2,243 physicians during the past year. The New York State medical schools are contributing substantially to this national responsibility to the public and the profession. It is borne out by the fact that 501 of 1,291 listed postgraduate courses in the United States were offered in the State of New York by the medical profession, hospitals and medical schools. For those universities with schools of dentistry, the medical schools take active part in the instruction, particularly in the first two years of the dental course. The instruction and supervision of the training of nurses in the teaching hospitals and medical schools is another large responsibility. The education of physical therapists, occupational therapists, a wide variety of technicians and social workers are other obligations of a medical school. Furthermore, the medical schools have the responsibility of recruiting and training the teachers in the medical sciences and clinical departments. Many of them carry large programs of research and are charged with the important training of research workers. In our own institution there are usually from 60 to 80 students of the Graduate Faculty of the University working in the medical sciences at the Medical School.

It is clearly evident that the maintenance of the highest standards of medical education and practice is in the best public interest. The plan of professional education should be focussed on preparing doctors for the future rather than the maintenance of existing levels of practice or the return to simpler devices of the past when medical knowledge itself was far less complex. The dilution of standards of medical education through expansion of enrollments in existing medical schools would be detrimental to the public interest because such increase in enrollments would be very likely to lead to a lowering of the standards of medical education. The production of more doctors than are needed for the proper medical services of the community and state would certainly be against the public interest because overproduction of physicians would lead inevitably, under the system of competitive medical practice, to a lowering of the standards and ethics of medical care. There is no doubt that the existing medical schools need additional financial aid in order to maintain the highest standards of medical training of the students now enrolled and for classes of similar size in the future. At the same time many medical students and many prospective students of medicine need financial assistance because of the high cost of medical education particularly in view of the long preliminary education required for admission, the high tuition and expenses of medical training itself, the great difficulty during the medical course of students being able to contribute substantially to their support and also because of the fact that medical education is not complete upon graduation from a medical school, but today requires from two to four or more years of hospital training during which time the student earns practically nothing. The plea to the Commission is that the State of New York interest itself in producing not more but better physicians to provide medical services of adequate standards for the people of this state.

The Private Practice of Surgery in University Hospitals*

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INTRODUCTION

On the uncharted and shifting sands of our socio-economic structure, medicine, like other caravans of man's activities, flounders dangerously and finds it increasingly difficult to select as well as to maintain a consistent and equitable course. The uncertainty underfoot and the impact of the elements may already be felt in numerous and variable insurance plans, the ever growing program for veterans' medical care, impending legislative measures, shrinking institutional endowments and the widely divergent opinions and plans within the ranks of medicine itself.

No longer can privately endowed institutions look to great philanthropic foundations to make up their deficits and support their expansions. No longer can the physician, whether within or without such institutions, look forward with equanimity to the security of a future in which his own accomplishments will constitute the sole measure of his chances of success and professional happiness in his chosen field.

In these turbulent times, there are many problems which urgently require solution and among them is that concerned with private practice in teaching institutions. It is the purpose of this address to examine this problem and its susceptibility of solution. But, since I have neither time nor competence to survey the entire field, my discussion will be confined entirely to the problem as it relates to surgery. Moreover, it is possible that my viewpoint will be colored, in some instances, by special considerations pertaining to my own specialty of neurosurgery.

THE NATURE OF THE PROBLEM

If the problem be stripped of biased demagogery and rhetorical window dressing, it readily resolves itself into a consideration of the aims to be attained and the needs to be filled by the institution, on the one hand, and the teacher of surgery on the other. What are these aims and needs? Can they be satisfied to the mutual and equitable benefit of both parties concerned? If so, how?

The medical school and its hospital aim to obtain and to hold competent teachers of surgery, to encourage and support research in surgery and to provide surgical care for the patients used in teaching and clinical research. Their needs are for funds to support the hospital (and possibly the medical school as well) and a means of furnishing equitable incomes to the teachers.

* From the Department of Surgery, Vanderbilt University School of Medicine, Nashville, Tennessee. Presidential Address delivered before the Society of University Surgeons, Boston, February 14, 1947.

It is well to remember that "teaching" includes both undergraduate instruction and the postgraduate training of surgeons. "Research" implies both clinical and experimental investigation. And, as regards the care of patients, a millionaire with an interesting clinical condition and a pauper with the same disorder are equally subjects for competent and sympathetic surgical care and valuable material for teaching. The teacher who is worthy of his hire is *a priori* interested in research and in the care of patients. The three phases of institutional activity are indissoluble and interdependent. For this reason, the problem of making time available for each of them becomes an important factor.

The aim of the teacher is to attain an opportunity to pursue these three phases of his work in an atmosphere of broad medical culture, of academic freedom and of enthusiastic search for new knowledge. His need is for an income which will provide present comfort and future security and which will be compatible with his potential earning capacity elsewhere.

It is in connection with this last point that the surgeon differs from the liberal arts professor or from most preclinical teachers. He is qualified to earn a comfortable, and often a very large, income in noninstitutional practice. The possible injustice of this difference is beyond the scope of this paper, but the fact remains.

The genuinely interested teacher of surgery will be willing to make sacrifices in terms of income for the sake of the opportunity just mentioned, but he is unfair to himself and his family if he accepts a very large discrepancy between his actual income and his earning capacity.

Thus, in short, the institution needs surgeons and money, the surgeon needs the institution and money. The institutions exist, the surgeons are available. The only real questions are: What will be the source of the money and under what arrangement will it be distributed? Self-righteous scientific fervor or altruistic humanism cannot justify ignoring these questions, materialistic though they be. Their answers must be honestly sought by institution and surgeon alike, in recognition of their mutual needs.

With a few rapidly fading exceptions, there are only two potential sources of funds: government and patients. It is true that government claims an increasing responsibility in medical care and education and that the future in this regard is unpredictable. Many veterans' hospitals, affiliated with medical schools (and potentially teaching institutions), represent an important example. It is also true that government subsidization of scientific research, through a National Science Foundation or similar agency, offers promise of great aid to sorely harassed institutions.

Under still existing circumstances, however, most teaching institutions retain a basic financial independence and most, I believe, would prefer to continue in this way. Obviously, then, patients must contribute materially to their support.

CURRENT PLANS

The plans in effect at present vary in detail almost with each institution

but, for purposes of discussion, they may be grouped under four basic systems:

1. Strictly full time faculty, with no private practice.
2. Part time faculty of "clinical" professors who carry on private practice outside the institution.
3. Private practice within the institution by "full time"¹ teachers, whose incomes (or salaries) are limited, surplus funds going to the institution or one of its departments.
4. Private practice within the institution by "full time" teachers, whose earnings are retained by themselves without restriction.

The first two of these plans may be disposed of quickly; the latter two deserve careful scrutiny.

The first plan in which no private practice is engaged in is possible only in institutions supported by government (whether federal, state or local). It does not and probably cannot exist in independent university hospitals, because of lack of funds and the diminishing number of nonpaying patients resulting from full employment and extensive insurance plans. It should be observed, however, that it is under only this plan (in which there is no private practice whatever) that many of the advantages claimed for the so-called "whole time" system could really exist.

The second plan, that of employing only part time teachers, is obviously unsatisfactory because of the hasty and inadequate teaching, the lack of time for research and the poorly supervised care of the institution's patients which such a system must necessarily produce.

Variants of the third plan have been in operation for a number of years in several institutions and are at present being tried or contemplated in several others. Under this plan, "full time" teachers are not only permitted but expected to engage in private practice, but the income from such practice in excess of a stipulated and fixed amount (which may, in some institutions, be paid to the teacher as salary) is turned over to the institution or to the surgical departmental budget. For purposes of objectivity, the plan may best be considered by listing its advantages and disadvantages.

Advantages. 1. All "full time" teachers are guaranteed the security of a more or less standardized income. Temptation to neglect other duties in favor of private practice and competition for private practice within the department are eliminated.

2. The funds so provided to the institution will help greatly to solve the problem of shrinking income from endowment and other private sources. If the department receives the surplus income from private practice directly, its research and other budgetary needs will be met and funds thus released for the support of preclinical departments. The incomes of the teaching staff will be provided without demands upon the general funds of the institution.

1. The term "full-time" is used here to imply that the individual's work is confined essentially to the institution, regardless of the source of his income.

3. Equitable, noncompetitive distribution of private practice will provide increased time to each individual for teaching and research.

4. Clinical and preclinical incomes could be of the same order of magnitude and preclinical jealousy of larger clinical incomes will be avoided.

Disadvantages. 1. Such a system is basically unsound, since it imposes the greatest tax upon him who works the hardest. If harder clinical work is permitted to imply less research and teaching, his value to the primary interests of the institution will thereby be reduced accordingly.

2. Regardless of efforts at distribution of private practice, the principal burden of support of the institution is sure to devolve upon the most capable and experienced surgeons. These men will also be, in all probability, the most competent and valuable investigators and teachers. Either an unequal distribution of work, without corresponding compensation, or diminution in the investigative and teaching potential of the department will result.

3. This system constitutes an undesirable form of collectivism. It is group practice without adequate or justly apportioned compensation. Not only is there standardization (or limitation at a relatively low level) of income among individuals, the amount of whose work varies greatly; but the individual's income often will not be relatable to or commensurate with his value to the department. If incomes are strictly standardized by rank or seniority, the most valuable will receive no more than the least. If stipulated incomes vary with presumptive value of the individuals, the low upper limits now permitted in representative leading institutions will still preclude equitable adjustment and, in addition, injustices will occur and envies will arise.

4. The value of a man is likely to be judged in terms of his production of income for the department rather than of scientific contributions and teaching competence.

5. Personal incentive will be diminished and the cherished personal doctor-patient relationship, with its enormous psychological benefits to both doctor and patient, will be impaired or lost.

6. There will be recognized a certain injustice in the direct or indirect support of preclinical departments by the private practice of the clinician. The working year of the surgeon is 365 days (less a minimal vacation) and his working day is often from 18 to 24 hours. His teaching assignments extend over a period of 9 months annually. On the other hand, preclinical teaching courses rarely exceed three to six months and preclinical personnel, in many, many instances, has a working year of nine or ten months.

7. Finally, as long as medicine is practiced in a free economy and as long as limited-income regimentation is not universal in teaching institutions, it is doubtful if most of the best men can be held under any such plan. An outstanding surgeon who, under this plan, must conduct a large private practice for the support of the institution or department would be unfair to himself and

his family if he refused the opportunity to receive the full income from his practice at no sacrifice of his contributions to teaching and research.

The advantages and disadvantages of the fourth plan may be listed similarly. Under this arrangement, private practice within the institution and the income therefrom are not specifically restricted, but the obligation to fulfill teaching assignments and to make scientific contributions is inherent in the individual's appointment. That I consider this to be the best plan will explain, if not excuse, my making brief rebuttal to the apparent disadvantages to be listed below, as they are presented.

Advantages. 1. The teacher is permitted to receive precisely what he earns and to profit in direct proportion to his ability to attract and satisfactorily to care for patients. At the same time, his income is automatically limited by his obligation to teach, to do research and to care for indigent patients. This obligation is, and should be, a matter of honor. If the staff is well chosen, it will be a matter of preference as well. As a prominent member of this society has recently written me, "Every surgeon worth his salt realizes that his greatest usefulness comes from an even distribution of his abilities and energies."

2. The institution will be spared the necessity of furnishing more than nominal salaries to its surgical teachers, while the latter will be working under an arrangement ideal to themselves. This implies a satisfied staff and therefore the ability of the institution to obtain and to hold men of its choice. The arrangement is ideal for the teacher because it permits him the widest possible freedom, in satisfying his personal bent in research and providing for his individual personal and financial obligations. Thus a Hugh Young or a Harvey Cushing might be largely restricted to purely clinical research by the size of a large (and lucrative) private practice, but who can question the enormous value of their contributions or the benefits reaped from their teachings by their graduate and undergraduate students and from their reputations by the institutions with which they were affiliated! On the other hand, another equally competent and perhaps younger surgeon with different personal obligations might prefer to limit his practice (and therefore his income) to obtain the quiet pleasure of the search for knowledge in the laboratory. Occasionally, an individual seems able to carry the burdens of large practice, extensive laboratory investigations, clinical research and his teaching duties as well. Should he be expected also to give up his earnings for the support of his own and other departments and to live on an income which may be wholly inadequate to meet his needs and obligations? Or can an institution which asks him to make such sacrifices expect to attract him to its staff?

3. Although, under this plan, the institution will not reap the surgical fees derived from the private practice of its staff, it will nevertheless profit by the encouragement of such practice. In addition to furnishing the income of the staff, the efficient operation of the private portion of a hospital is a profitable enterprise and will yield a surplus income for the support of other phases of the institution's activities. This is a well known fact and has been re-demon-

strated in recent surveys, including one of my own. Furthermore, the rapid spread of insurance plans is already yielding an increasing hospital income from previously indigent or "part pay" patients.

4. Under this plan, it is likely, despite conscientious effort under other plans, that patients will receive better care, through the added incentive and the personal doctor-patient relationship.

Disadvantages. 1. There is a very real danger of selfish exploitation of the opportunity for private practice by the staff-member, to the neglect of his teaching and research obligations. For the prevention and elimination of this evil there are two remedies: careful choice of men and ruthless elimination of those who fail in their obligations to the institution. The latter course will often be difficult and the objection, therefore, is valid,—though by no means conclusive, as we shall see.

2. Time for research and teaching will be limited by private practice. However, given a staff with the proper appreciation of its various functions and obligations, this will be true only insofar as the value of the patient-material for clinical research exceeds that which might be derived from other pursuits. Youth and lack of reputation will automatically provide more time for younger men to work in the laboratory, whereas the ravages of age, as well as the demands for practice, may force older men into predominantly clinical research. The value of the older man's investigative ideas will be passed on and need never be sacrificed. In any event, the time devoted to private practice will presumably not exceed that under a limited income plan, in which the obligation exists for the surgeon to provide income for the institution, and the objection is perhaps equally applicable to both systems.

3. Such a plan will provide only limited funds (from hospital profits) for institutional support. The answer is that, in the first place, such support should not rightly be derived from the prostitution of the talents of the teaching staff and, in the second place, other sources of support should and will be forthcoming. Detailed discussion of such sources here is impossible, but it may be pointed out, as an example, that government support of research through a National Science Foundation, or similar agency, may be of enormous aid to our medical institutions, without prejudice to their independence.

4. Jealousy may be incited in the preclinical teacher by the larger income of his surgical colleague. Such an attitude, if it exists, is not justifiable and such an objection is not tenable. Any possible injustice resulting from inequality of incomes cannot be laid at the door of an arrangement without which preclinical salaries would be no larger and with which preclinical budgets may well be increased, through funds released from the clinical departments. Rather it is the fault of the age old inadequacy of compensation of teachers of all types and it bears no relationship whatever to the problems of private practice in teaching institutions. Further, it is obvious that the preclinical teacher has chosen his life's work with a full awareness of the discrepancies that exist, presumably

because he had so strong a preference for his field of work that a potentially smaller maximum income was willingly accepted.

RELATED PROBLEMS

Though this paper is growing too long, it is essential that I mention very briefly three closely related problems which may materially affect the future of medical education and of private practice.

Private Patients and the Teaching Function.—The shrinkage in numbers of so-called "teaching cases" with corresponding increase in "pay-patients" already mentioned is bringing to the fore the question of the use of private patients for teaching. Like other phases of institutional private practice the use of such patients for undergraduate teaching has been quietly practiced to some extent in most institutions for years, but a strange, "hush hush" aura of secrecy has sometimes suggested that it is reprehensible and fraught with risk of criticism. That the contrary is true, however, has been well shown in a few teaching hospitals for years. The intelligent patient has long since learned that it is to his advantage to form a link in the chain of postgraduate training of the house staff. Similarly, where opportunity has permitted, he has appreciated the value of a clinical clerk in contributing to the thoroughness of his medical care. Most private patients are flattered and interested to be shown in student clinics and it is very rare to encounter any objection to this practice. In my opinion, all private patients should be used for teaching according to the same routine now employed in our "teaching" wards.

The very real problem of postgraduate training of surgeons in the operating room in relation to private patients is not within the scope of this discussion.

Veterans' Hospitals and the Teaching Function.—It is apparent that the wards of those veterans' hospitals which are affiliated with medical schools constitute a large and untapped source of undergraduate teaching material, just as it is already proving to be of great value in postgraduate training. Congressional fears that veterans will be used as "guinea pigs" are not only groundless, but are probably not shared by the great majority of the veterans themselves. Our own recent experience has demonstrated only a profound gratitude for the opportunity of obtaining medical care at the hands of university teachers and their subordinate staffs. The presence of medical students in their wards would, I believe, be welcomed by veterans and would undoubtedly contribute, in the long run, toward more personal attention and higher quality of medical care, as well as toward the aims of medical education.

Veterans' Hospitals and Private Practice.—Ultimately, if veterans' medical care comes to include families of veterans and if other forms of socialization greatly increase the scope of government provision of medical care, the controversy under discussion in this paper may become a tempest in a teapot. The inroads of veterans' hospitals into private practice can already be felt distinctly.

Nevertheless, the problems which I have discussed are not for the distant future, but urgently require solution now. Further, it is likely that, for a long

time, whatever system of medical practice may evolve, there will be a place for private practice by top flight specialists and most of the best of these will continue to be found on university staffs.

DISCUSSION

It will be plain by now, as I have stated previously, that, despite my efforts at objectivity, this paper necessarily reflects the biased viewpoint of its author. Those who do not agree will gleefully seize upon those prejudices and inconsistencies which I have failed to eliminate.

If this bias be a fault, however, it is none the less an expression of my firm conviction that free and unrestricted private practice by surgical teachers will, in the final analysis, lead to superior teaching, more and better contributions to scientific knowledge and a better atmosphere of satisfaction and harmony on the medical faculty than will any other system.

Since equally firm convictions to the contrary are held by able leaders in medical education, the question arises as to whether a really equitable solution is possible. Can the element of compromise be introduced without sacrifice of principle? I believe it can. I have already stated that the surgeon with a sufficiently strong interest in teaching and research to make him a desirable member of the faculty will be willing to make financial sacrifice to obtain the undoubted advantages of an acceptable university position. Such a sacrifice might well be in the form of contribution to the institution from private income, but the arrangement under which and the extent to which this is done are of primary importance.

In my opinion, the arbitrary stipulation of maximum income is the basic error in the limited income system. The corollary fault is the small size of that maximum figure in relation to the earning capacity of the surgeon. These and other controversial problems can, I believe, be solved best by a plan which will embody the following broad principles:

1. The surgical teacher should be permitted to conduct private practice within the institution without restriction, and to receive the income from his practice.
2. He should return to his own departmental budget a percentage of his income from private practice, the percentage to be calculated on a sliding scale so that a larger and larger percentage will be returned as the income of the individual increases. In this way, the young man, with a small practice will be permitted to retain most of his income, but, at the same time, the established surgeon, with a large practice, will be permitted to profit by his reputation and ability and will not be restricted to only a small proportion of his earnings.
3. Under no circumstances should the percentage of income to be returned exceed twenty-five per cent.
4. The percentage should be calculated on the basis of the individual's net income after deduction of professional expenses. Thus the surgeon will

not have to pay a premium for attending society meetings, employing adequate secretarial aid and defraying similar expenses.

5. There should be rigid insistence upon the fulfillment of teaching and research obligations. I believe that enforcement of this provision can best be made effective through the functioning of a Faculty Committee on University Obligations, names of whose members perhaps should not be revealed. By such a committee the value of a man to the institution could be determined on broad grounds, without placing unfair and possibly intolerable responsibility upon the departmental head (whose opinion, however, should carry great weight with the committee).

6. Private patients should be used for unrestricted undergraduate teaching.

The heritage of the medical profession is a liberal one. It has produced pioneers in scientific progress and great thinkers in social and economic fields. Its educational institutions have broadened their scope and advanced their methods with the demands of newer knowledge and the exigencies of socio-economic circumstances.

However, liberalism and the need for change must not be confused with collectivism and diminution in the value of personal rights. Let us not sacrifice the principles of freedom and independence before the false god of pseudoscientific purism.

Responsibilities of the Medical School in the Training of Physical Therapists

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The extensive use of new techniques for hastening convalescence and expediting the rehabilitation of the severely disabled attracted the attention of medical officers affiliated with military installations during the war period. The return of these medical officers to civilian practice has been associated with an appreciable augmentation of interest in the therapeutic usefulness of all physical agents. This has been stimulated further by the activities of the National Foundation for Infantile Paralysis¹ and the Baruch Committee on Physical Medicine,² both of which have given substantial financial support to medical schools for education and research in this branch of medical practice. The total effect of these clinical, pedagogic and investigative developments has been a sharpening of interest in the establishment of physical medicine as a specialty.

Since few physicians have the time to administer their own physical treatments, the practice of physical medicine requires the services of trained technical assistants. If the best possible type of clinical physical medicine is to be fostered and made maximally available to all who would benefit from its proper administration, medical and technical education in this field must be synchronized at appropriate levels and in proper ratio. One without the other is incapable of meeting the mounting pressure of a public interest in medical rehabilitation, backed by private agency, State and Federal funds.

DELIMITING RESPONSIBILITY FOR TECHNICIAN TRAINING.—Physical therapy now offers a sufficiently stable and promising vocational outlet to be attractive to increasing numbers of students. Applicants for admission to schools accredited by the Council on Medical Education and Hospitals of the American Medical Association currently exceed vacancies by 100 per cent. In spite of the termination of the war and the exodus of physical therapists in large numbers from the armed forces, demands for these technical assistants continue to surpass the supply. To meet the importunities of the times, most schools are now undergoing transition from the vocational inservice type training of a few physical therapists annually, to the establishment of formalized educational programs, designed to prepare much larger numbers of students. Some of these lead to a baccalaureate degree. Since the majority of physical therapists function in one capacity only, that is, as the agent of the physician, treating the patient in his place and stead, the medical profession can hardly find it to its advantage to ignore responsibility for the character and quality of the training of these essential technical assistants. Thus, several problems of importance to medical school administrators have arisen concurrently with interest in the establishment of physical medicine as a specialty.

Recent trends in physical therapy technician training have been characterized by the gradual replacement of hospital schools with centers having university or college affiliations in institutions maintaining a program of medical education, and by cleavage of administrative control into two more or less distinct patterns. In some institutions administrative control has been retained by the technical group, with only nominal guidance from a medical director. In others, responsibility for the training of physical and occupational therapists has been accepted by physicians as a medical school obligation comparable to policy-making control over the education of nurses, medical technologists and x-ray technicians.

All non-medical assistants to the physician in the conduct of the details of his practice require instruction in some phases of the basic and medical sciences, varying in level from incidental orientation lectures to work of comparatively high caliber, based on a thorough-going study of the preclinical biological and physical sciences. The vocational training aspects of these programs are uniformly dependent on the opportunity to utilize clinical facilities and patients. It would seem that the assumption of responsibility by medical faculties for curriculum planning in all adjunct schools training personnel for the ancillary services upon which the modern practice of medicine depends, is the only logical method of achieving that integration of effort necessary for the maximal conservation of the time of medical school teachers, and the most efficient use of more or less limited physical facilities and clinical material. The vocational and academic aspects of all types of technician training must be continuously maintained at levels best suited to an ever changing concept of what constitutes good medical practice. No one is in a better position to assume responsibility for over-all policy-making in this area than the medical school dean. The planning and administration of the physical therapy training program then become the function of the physiatrist, with operational details assigned to technical assistants.

VOCATIONAL VS. PROFESSIONAL EDUCATION FOR THE PHYSICAL THERAPIST.

—Many of the techniques of applying physical agents for therapeutic purposes are exceedingly simple. Exposure to the physical agent itself is the crux of the treatment, and not the manner in which it is administered. These are sub-professional activities which might be transferred advantageously to intelligent assistants who have received a purely vocational or craftskill type of training. The wise use of enlisted personnel so trained in Army and Navy hospitals during the war period might be emulated with profit by large civilian treatment centers in which the employment of the optimum number of professional physical therapists at current wage scales may be considered an economic impossibility. Acceptance of this expedient would be comparable to the increasing use of practical nurses in well planned and adequately supervised programs of institutional care for the sick. A continuous upgrading of the professional standards governing the training of all physical therapists is not necessarily the best method of meeting increased demands for the type of service they render to the sick and disabled. The entire problem deserves careful study, especially against the per-

spective of whatever influence the specialty training of physicians may be expected to have on the future of physical therapy.

In contrast to what has already been said, some of the techniques of applying physical agents for therapeutic purposes are not only complex, but are dependent for their success upon sound knowledge in areas which have attracted the attention of comparatively few physicians. Muscle re-education is the example *par excellence*. It requires command of considerable detailed anatomical knowledge, applied to the analysis of involved problems in human biomechanics. The physical therapist is often given grave discretionary powers in the planning of progressive muscle training programs. The granting of discretionary powers applies also to the use of procedures dependent upon complex instrumentation or tedious manipulative skills. These are professional activities which can be guided only by judgment based on knowledge.

The methods of physical medicine offer a virtually untapped reservoir of diagnostic and prognostic tests useful to objective disability evaluation. It is perhaps inadequately appreciated that any significant expansion of clinical research in as virgin a field for investigative study as physical medicine, will require the development of assistants skilled not only in the laboratory techniques of the basic medical sciences, but also experienced in the clinical application of physical agents. If instruction of the professional physical therapist is to be of the highest caliber it must be accompanied by problem-solving experience, which, as Wangenstein points out, adds meaning to materials taught.⁸ The appreciation of the value of evidence is a concomitant of good teaching. Unfortunately, insufficient preprofessional emphasis on the so-called "solid subjects," mathematics, languages and the physical sciences, frequently becomes a seriously restrictive barrier to graduate study of this type. Thus, the superior technician, who gravitates to a modern university physical medicine center with its integrated program of research and education, finds himself overtrained for the routine activities of the clinic, but inadequately prepared to serve the physician as a clinical research assistant, or as a faculty member of a professional school of senior college or graduate school grade. The training of two distinctly different types of physical therapist may be the answer to this dilemma.

ADMISSION STANDARDS.—The Council on Medical Education and Hospitals of the American Medical Association has established the admission standards to enrollment in physical therapy training schools approved by that agency. These are graduation from an accredited school of nursing or physical education, or two years of approved college training including satisfactory courses in biology and other sciences. The areas encompassed are not academically comparable. Curricula, methods of teaching, staff qualifications, physical facilities, vocational emphasis, and graduation standards in physical education and nursing schools vary over an exceedingly wide range, both intra-individually and comparatively. These differences are further magnified by the enrollment in physical therapy courses of increasing numbers of students who have had three years of college work in the biological or physical sciences. Bingham has pointed out that the intelligence scores of nurses in training are lower than those of college

freshmen and that the average college student surpasses the average nurse trainee in the qualities measured by an intelligence test.⁴ The fact that students with such divergent backgrounds of general and professional education are commonly enrolled in the same classes suggests that the acceptable level of attainment must be comparatively low.

In an effort to arrive at a soundly based decision as to whether the training of such an admixture of candidates for certification in physical therapy should be pitched on a professional plane or ranked as vocational training of college or less than college grade, a preliminary study was attempted of the aptitudes and capacities of students electing to prepare themselves for this field at the Medical College of Virginia.

CUES TO APTITUDE FOR PHYSICAL THERAPY.—The primary object of the testing program was to try to differentiate candidates with capacities for a professional education from those better qualified for vocational training. Since success in the performance of the diverse activities of the physical therapist appear to be dependent upon sound theoretical knowledge of comparatively high academic grade in combination with the personality qualities and social outlook of workers in a profession dedicated to service to humanity, aptitude for science and for nursing may be taken arbitrarily as the dominant characteristics required. Dependence was placed upon existent, previously standardized tests. These consisted of the Medical College of Virginia (M. C. V.) *Composite Examination for Nurses*, First Edition; the M. C. V. test titled *Reading Exercises in Medical Literature*, Nurses' Edition, which had been given to medical students as well as nurses and candidates for nursing training; the *Stanford Scientific Aptitude Test* originally set up for the selection of freshmen entering science or engineering; and the *Miller Analogies*, Form G, designed to measure aptitudes for graduate study. Thus, the battery selected covered a wide range of capacities, in keeping with the extreme heterogeneity of the preprofessional preparation and the vocational or professional experience of the candidates accepted for training.

No effort was made to conduct a job analysis investigation of the manipulative operations performed by the physical therapist in her daily round. This is a major inquiry in itself. The acquisition of vocational proficiency in physical therapy is dependent to an unknown degree on the dexterous handling of complex tools and a variety of materials, as well as versatility in motor skills, such as the movements of massage, muscle testing and therapeutic exercise.

The battery of tests selected was validated in two different ways. First, they were given to individuals known to possess the minimum essential proficiencies deemed necessary for success as a physical therapist. Certification by the American Registry of Physical Therapy Technicians or membership in the American Physiotherapy Association were taken as *prima facie* evidence of competence. Secondly, the aptitude test scores of all candidates were correlated with achievement on a comprehensive examination composed of 336 test items distributed as follows: anatomy, 116; medical physics, 74; massage, 27; hydrotherapy, 26; fever therapy, 8; phototherapy, 25; orientation, 23; general tech-

niques, 13; and integration of basic science and technical information, 24. The test was of the objective type. It was weighted according to the number of hours devoted to the teaching of each subject. No time limit was set for the completion of the examination. This ranged from 1 hour and 20 minutes to 3 hours and 50 minutes. The average time necessary for the test was approximately 3 hours. Finally, the aptitude scores of candidates for certification were also related to achievement as measured by individual course grades.

SUBJECTS OF THE INVESTIGATION.—The requirements of the Council had been used in the selection of applicants admitted to the class under study, supplemented by preference to high ranking college or university students, and candidates with a successful allied vocational experience. Scholarship estimates were of uncertain value because of the high incidence of non-degree nurses among the applicants accepted under Government contract, and the absence of criteria by which to measure the quality of the vocational training centers from which these students came. All candidates possessed the level of general education currently expected of those who enter physical therapy.

To determine whether the applicants accepted were endowed with the degree of intelligence found to characterize physical therapists already in the field, the aptitudes and capacities of all affiliates of the college who were graduates of approved Physical Therapy Technician Training Schools were also tested. This group was composed of Hospital Division physical therapists, training school teachers, clinical research assistants and graduate students. This was done because the meager literature on educational problems in this field offers no criteria by which to measure the qualities possessed by the successful physical therapist. All tests administered were taken likewise by a miscellaneous group of Baruch Center personnel, including basic research assistants and individuals with doctorate degrees in medicine or philosophy.

The total group tested numbered 68. Of these, 42 were entering students representing 25 different states by home or school background. Twenty-six of the candidates for certification were registered nurses. Of these, only 7 were degree holders. Although 22 of the total group of trainees had no degree, 17 had had some work on the college level. Six of the 17 were candidates for the B. S. degree in Physical Therapy, now in their fourth or professional year of college work. Twenty-one had already earned the baccalaureate and 1 the master's degree in arts or sciences. They were not predominantly regional students, but represent 16 different, widely scattered universities or colleges.

Records of the previous college educational experience of candidates from areas other than nursing indicate that their major fields embraced physical education, prephysical therapy, home economics and the biological, physical and social sciences. All of these students had studied biology. The additional prerequisite science training was obtained predominantly in chemistry, physiology, and comparative or human anatomy.

The mean age of the trainee group was high, 29 years, ranging from 20 to 44. The majority were mature professional women who had an average of 6

years of experience in some field related directly or indirectly to physical therapy. For purposes of analysis, the total group was classified in various ways as follows:

Non-degree (vocational) nurse	23
Degree (collegiate) nurse	7
Non-degree holder	32
First degree holder	27
Advanced degree holder	9
Physical therapy student	42
Physical therapy graduate	18
Nurse physical therapist (candidate or graduate)	30
Physical therapist (candidate or graduate)	29

TEST CONDITIONS AND METHODS OF HANDLING THE DATA.—Preliminary indoctrination insured a good attitude toward the tests. All aptitude tests were administered during the opening week of school. Testing was done in suitable quarters free from disturbances and interruptions. Standard directions were given by a staff member experienced in the administration of aptitude tests. The battery required 6 hours. Not more than one test was given per diem if the time required exceeded 2 hours. Scoring of the M. C. V. tests was done by the Director of the Bureau of Educational Research, who was responsible for their compilation and validation.⁵ All other scoring was done by one of us (E. N. D.).

The data were subjected to standard statistical procedures including the assignment of numerical and decile ranks to all candidates. Correlations were computed between the individual tests of the battery and the Baruch Comprehensive Examination. The mean score and its standard deviation were obtained for the groupings classified.

Results and Their Interpretation.—Within limits, the battery of tests utilized have a moderate degree of validity. Although the correlations of the scores with those of the Baruch Comprehensive Examination are low, three of the four are significant (Table 1) and indicate that to some extent they may be considered diagnostic of capacity to master major areas of subject matter in the field of physical therapy. The extreme heterogeneity of age and educational background may account for these low correlations and also for the high variability of the scores. Another factor which must not be ignored in the interpretation of these low correlations is that, by and large, students in a professional or vocational training center are there by choice and possess singleness of purpose and a determination for success. The fact that four students scoring low on one or more of the aptitude tests placed more than four deciles higher on the Baruch Comprehensive Examination may be attributable to this motivating influence.

Bearing in mind the limited diagnostic value of the aptitude tests, a comparison of the results can be made. Figure 1 shows that the nurse undertaking the study of physical therapy will probably be handicapped in competition with the individual from fields other than nursing. The non-degree nurse and the nurse physical therapist rank lower than any other group on the M. C. V. Composite and the Miller Analogies tests and only slightly higher than the degree nurse (who stands lowest) on the Stanford test. It is interesting to note that the degree nurse is only little better than the average for the group on the M. C. V. Composite, a test designed to measure nursing aptitudes. A

study of the course grades as well as the results of the Baruch Comprehensive Examination bears out this observation (Table 2). A larger percentage of students with a nursing education than those from other areas fall in the lowest three deciles, while the non-nurse candidates tend to dominate the highest three deciles. The fact that physical therapy graduates rank but little above the mean for the entire group on all three aptitude tests may be interpreted as due to their heterogeneous background. The vocational atmosphere in which the average physical therapist finds herself is not necessarily conducive to the further development of initial professional capacities. The M. C. V. Reading Exercises in Medical Literature were not sufficiently differentiating to warrant detailed analysis.

DISCUSSION.—Since the tests administered to determine aptitude for physical therapy have a significant, though low correlation with the Baruch Comprehensive Examination, the scores attained may be taken as indicative of trends in the comparative strength of abilities needed to master and practice the technical aspects of this branch of the healing art. Although the evidence indicates that the nurse is handicapped when she competes with trainees coming from other fields, it must not be forgotten that the fragment of that which goes into the making of a physical therapist which is amenable to objective testing of the type used in this preliminary study, is concerned overwhelmingly with the didactic phases of the training program. Nothing in the data assembled indicates that students with a non-nursing background who stand higher on the aptitude tests than the nurse and tend to dominate the upper three deciles in all measures of scholastic achievement will be superior in the field. On the contrary, the nurse is known to possess personality qualities and concepts of disciplined and ethical behavior conducive to the attainment of distinction in the art of the practice of physical therapy. It is possible that in the complex environment of the average hospital, with its traditions and hierarchies, the adaptability of the nurse and the greater range of her over-all usefulness to the physician count for more than the academic superiority of the non-nurse while in the training school. However, neither is qualified to practice medicine. The exercise of discretionary judgment in the selection of therapeutic modalities and their technique of administration and dosage is inextricably linked with a body of knowledge presumed to be possessed only by the physician. Where technical assistants are given wide discretionary powers, the level at which physical medicine is practiced must perforce be substantially below the maximal therapeutic potentialities of this form of service to the sick and disabled. The problem then resolves itself into an appraisal of the educational status quo, relative to the training of physical therapists, and the responsibilities of the medical school in the alignment of training school policies in keeping with newer trends in the practice of physical medicine by physicians on a specialty basis.

In general, physical therapy technician training schools still have a tenuous attachment to the medical schools with which they are affiliated. They may even be organizationally quite independent of the institutional division authorizing the issuance of certification credentials. In many, income-producing facilities

provided by the medical school's Hospital Division for service to the sick must be shared with the training school in the teaching of technical subjects. Incidental medical lectures are often given by a shifting house and visiting staff, and vocational subjects may be taught by physical therapists without academic interests who are hospital employees with heavy service responsibilities to the patients of large numbers of referring physicians. Thus, the training school may have virtually no control over the quality of its clinical instruction, and may indeed find itself forced, time and again, to accept teaching in the important applied basic sciences by young assistants unfamiliar with the problems and needs of the physical therapist. Such is the status not infrequently granted to the physical therapist in the family of technical specialists for whom the medical school assumes pedagogic responsibility.

The educational philosophy reflected in the organization and practices described appears to be out of line with the pre-professional preparation and academic capacities of many candidates for certification as physical therapists. It would be well then to consider the possibilities and advantages of two levels of physical therapy training, one in which the academic aspects of Physical Therapy Training School programs would be de-emphasized and the curriculum reduced to a frankly vocational status, and the other which would align physical facilities, curriculum planning, faculty qualifications and teaching load with other university professional schools, operating on a senior or graduate level.

1. JUNIOR COLLEGE GRADE TERMINAL PROGRAMS OF VOCATIONAL PHYSICAL THERAPY TECHNICIAN TRAINING.—Whereas the non-scholastic type of student cannot profit from a highly theoretical study of the fundamentals of physical therapy, and ceases considering these as soon as he becomes a worker, he possesses many desirable qualities which might be more advantageously developed in less than degree-grade vocational programs rather than within the framework of a professional school. In the struggle for prestige and professional recognition, curriculum patterns have not always been moulded on a realistic analysis of job requirements.

The establishment of physical medicine as a specialty will do much to insure continuous and informed medical supervision of hospital services based on the application of physical agents to the treatment of disease and the alleviation of disability. Where a professionally trained physical therapist is, in addition, made responsible for the operational details of departmental management, such a team can oversee the activities of a number of sub-professional workers whose training puts a minimum emphasis on occupational knowledge, and major stress on the acquisition of manipulative hand skills, safety habits, good house-keeping practices, reliable observation, and the exercise of practical judgment in the referral of atypical phenomena to the responsible supervisor. The selection of sub-professional workers might be related less to scholarly interests and school grades than to physical strength and dependability, composure under stress, a cheerful disposition, ability to work sympathetically with the sick and disabled, mechanical ingenuity, and a highly developed sense of rhythm, kinaesthesia and motor coordination. A one or two year program of on-the-job train-

ing for high school graduates might provide adequately qualified sub-professional aides for many of the simple or menial time-consuming activities now being performed by physical therapists, who, because of four or five years of college training, have the right to expect the wage levels, privileges and freedom reserved for professional callings.

Much could also be done to further reduce the cost of this type of medical care if greater attention was paid to providing adequate numbers of other types of sub-professional workers, such as orderlies, for the transfer of patients from the bedside to the treatment room. The conservation of the time of technicians can no longer be ignored. The same applies to the more economical use of clerks for the multiple details of patient scheduling, which is complicated by the limited supply of costly equipment and by the tendency for some clinics to encourage intradepartmental technical staff specialization. With the establishment of physical medicine as a recognized specialty, the necessity also arises, not only for the keeping of adequate departmental records, but for the systematic transmittal of progress notes and discharge summaries to referring services and physicians. When as many as one hundred patients are treated daily in a Physical Medicine department supervised by a single physician, the keeping of records consistent with good medical practice is impossible without clerical assistance, unless one sacrifices the time of expensive professional workers to these non-professional but essential duties.

2. THE EDUCATION OF PROFESSIONAL PHYSICAL THERAPISTS: PYRAMIDAL VS. HORIZONTAL CURRICULUM PLANNING.—The course of study for certification in physical therapy may be divided roughly into three interrelated sections. Basic to the whole is an intensive preclinical study of anatomy, both dissecting and living, experimental applied physiology, laboratory medical physics, and a non-morphological introduction to pathology. The strength of this block of subjects determines the character of the remaining curricular structure. Upon it may be superimposed orientation lectures in selected phases of medicine, surgery and the specialties related to the practice of physical medicine. These comprise the least important of the three main divisions of the curriculum and occupy roughly five per cent of the student's time. He is now prepared to understand the biophysical and physiological rationale of the use of physical agents in the treatment of specified disease syndromes, and can bring both understanding and critique to the study of the craftskill aspects of their technique of application. To begin this third phase of training before the foundations of a professional education have been laid, automatically relegates teaching in this area to the vocational or trade skill level. Unless the curriculum is built on the block system, pyramiding from the basic sciences, through the medical sciences to an apical consideration of the technical subjects, the entire program is perforce superficialized. One step must be mastered before going on to the next. Neglect of strict adherence to sequential planning is probably responsible for more weakening of the physical therapy curriculum than any other single factor.

Army and Navy training programs for many different types of technicians demonstrated that the learning process could be accelerated significantly if major

time was devoted to the building of firm foundations. The experience derived from these vocational training programs during World War II gave evidence that areas previously requiring as long as seven years in apprenticeship could be broken down into units of training requiring only two to six weeks.⁶ Complex skills and techniques apparently could be learned in an incredibly short time without lowering standards of acceptable performance. One of the chief obstacles in the way of pyramidal curriculum planning is continued reliance on apprentice-type methods of teaching technical subjects. These do not lend themselves to the quick and efficient instruction of large numbers of students.

A horizontal development of the physical therapy technician training program has some important advantages over vertical curriculum building. In the execution of such a plan, the biophysicist, physiologist, physician and technical expert teach all vocational subjects cooperatively, integrating subject matter concurrently rather than in semi-autonomous sequential order. Ideal in many ways, this requires a devoted staff sufficiently versed in the techniques of teaching to dovetail the applications of the respective basic sciences with an orderly presentation of the fundamentals of each individual subject. This may be the only method of lifting the teaching of technical subjects from a vocational to a professional status. The physical therapist, who may not even hold a B. S. degree, is not sufficiently versed in the basic and medical sciences to be given responsibility for the unaided professional teaching of courses of senior college or graduate school grade.

There is real danger that in the process of intellectualizing physical therapy, the student will be kept so busy learning physics, physiology and anatomy that there is no time left to master highly complex vocational skills. However, even more important than that is the current abyss between the academic background and scholarship of those who teach the fundamental subjects in the physical therapy curriculum and those who are expected to link practical teaching to this broad expanse of related human knowledge. Much of genuine pedagogic interest might unfold by applying laboratory techniques to the teaching of the craftskill phases of physical therapy with the aid of equipment and facilities universally recognized as indispensable to adequate teaching, and with the assignment of a properly qualified cross-departmental staff to those responsibilities. This includes the provision of adequate amounts of non-income-producing equipment for the teaching of all technical subjects.

GRADUATE EDUCATION IN PHYSICAL THERAPY.—The services of the professional physical therapist might well be reserved for the supervision of less academically inclined sub-professional technicians, for the organization and administration of junior college terminal programs of vocationalized physical therapy technician training, for instruction in collegiate type professional schools, and for specialized training as clinical research assistants. Those primarily concerned with specialization in the departmental management of large clinical services and the vocational training of sub-professional workers should have the opportunity of graduate study in education and the social sciences. Those who

desire to function as senior college or graduate school teachers in the professional training courses organized and administered by the medical school faculty, or as clinical research assistants, must get back to fundamentals and reinforce their acquaintance with the basic disciplines upon which the rational practice of physical medicine depends. There is no short cut to achievement on this plane. It stands as a challenge to the physical therapist who finds himself in conflict with the multiple unsettled problems in this field of medical practice, who appreciates the value of accumulating scientific evidence, is willing to master the exacting techniques of experimental research and assist in their application to the advancement of human knowledge.

SUMMARY AND CONCLUSIONS

The rapid development of, and interest in the rehabilitation of the disabled and the emergence of physical therapy as a field of endeavor demanding professional status have produced problems which must be faced if physical medicine is to take its place as a specialty of maximum benefit to those needing its services. Objective consideration of these problems and the evidence set forth in this paper warrant the following inferences or conclusions.

1. The current ratio of employment opportunities to the supply of trained applicants suggests that physical therapy may provide an increasingly stable occupational outlet for qualified workers.
2. Since the physical therapist functions primarily as the agent of the physician, ministering to the patient in his place and stead, the training of such technical assistants is a responsibility of the medical school.
3. Academic areas encompassed by the current standards of admission to physical therapy training centers are so far from being comparable that efficiency of teaching is gravely impaired.
4. The capacities to acquire the proficiencies necessary to graduation from a physical therapy training school may be estimated as a statistical probability by the intelligent use of carefully selected tests.
5. Because the number of applicants for admission to accredited training schools exceeds the capacity of such centers, appropriate testing programs may be introduced profitably to assist in predicting and excluding failures.
6. In order that professional advancement may be insured, the solid subjects of the preprofessional curriculum should be given adequate stress in degree courses.
7. The dearth of qualified workers, rapid expansion in the use of physical agents for therapeutic purposes, noncomparable admission standards to training schools, and the varied demands of the profession ranging from the performance of purely craftskill activities to organizational, administrative and instructional obligations of high order, suggest that consideration should be given to differentiating between vocational and professional education in this field.

The authors wish to express appreciation for the advice and assistance of Dr. A. W. Hurd, Director of the Bureau of Educational Research and Service, Medical College of Virginia.

TABLE 1.—CORRELATION OF THE BATTERY OF APTITUDE TESTS WITH THE BARUCH COMPREHENSIVE EXAMINATION.

	r	6 r	r/6 r
M. C. V. Composite Examination for Nurses, First Edition.....	.46	.16	2.90
Miller Analogies, Form G.....	.49	.16	3.08
Stanford Scientific Aptitude Test50	.16	3.14
Reading Exercises in Medical Literature, Nurses' Edition.....	.37	.16	2.33

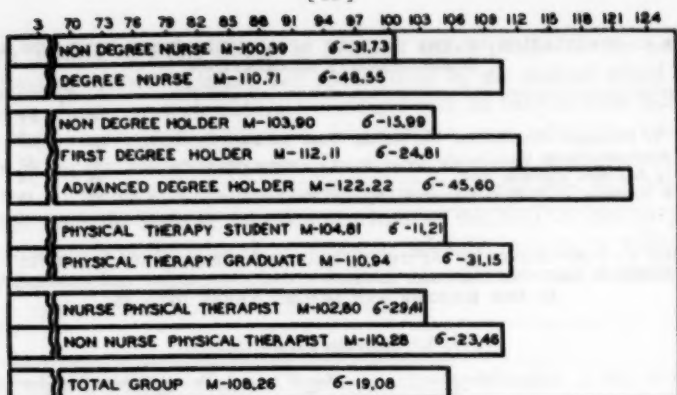
TABLE 2.—COMPARISON OF APTITUDE AND ACHIEVEMENT OF STUDENTS WITH DISSIMILAR PRE-PROFESSIONAL BACKGROUNDS, INDICATING THE PERCENTAGE IN THE HIGHEST AND LOWEST THREE DECILES.

Aptitude Tests				
	Non-nurses %	Nurses %	Degree Nurses %	Non-degree Nurses %
Stanford Scientific Aptitude				
Highest 3 deciles.....	62.50	4.17	00.00	5.88
Lowest 3 deciles.....	18.75	50.00	71.43	41.18
Miller Analogies				
Highest 3 deciles.....	37.50	20.83	28.57	17.65
Lowest 3 deciles.....	6.25	45.83	57.14	41.18
M. C. V. Composite				
Highest 3 deciles.....	37.50	33.33	28.57	35.29
Lowest 3 deciles.....	31.25	33.33	28.57	35.29
Baruch Comprehensive Examination				
Total Test				
Highest 3 deciles.....	43.75	20.83	14.29	23.53
Lowest 3 deciles.....	12.50	41.67	42.86	41.18
Anatomy Section				
Highest 3 deciles.....	56.25	20.83	00.00	29.41
Lowest 3 deciles.....	6.25	33.33	28.57	35.29
Physics Section				
Highest 3 deciles.....	43.75	29.16	14.29	35.29
Lowest 3 deciles.....	00.00	37.50	57.14	29.41
Technique Section				
Highest 3 deciles.....	56.25	20.83	28.57	17.65
Lowest 3 deciles.....	12.50	29.16	28.57	29.41
Course Grades				
Anatomy				
Highest 3 deciles.....	43.75	16.66	14.29	17.65
Lowest 3 deciles.....	18.75	29.16	14.29	35.29
Physics				
Highest 3 deciles.....	57.50	16.66	14.29	17.65
Lowest 3 deciles.....	6.25	33.33	28.57	35.29
Technique Courses*				
Highest 3 deciles.....	43.75	20.83	14.29	23.53
Lowest 3 deciles.....	12.50	29.16	42.86	23.53

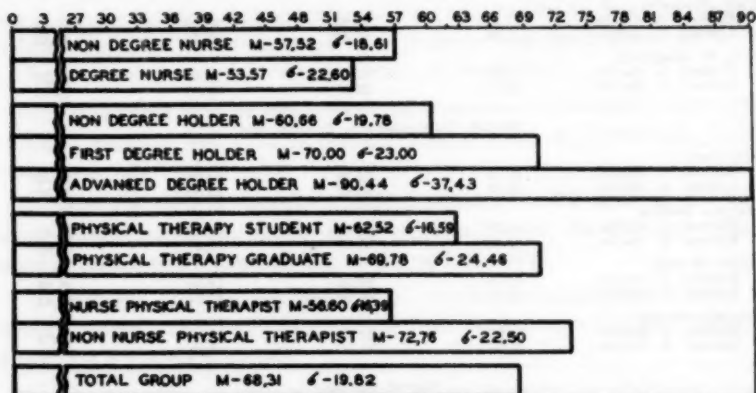
* Weighted average of massage, hydrotherapy, phototherapy, fever therapy, bandaging and asepsis.

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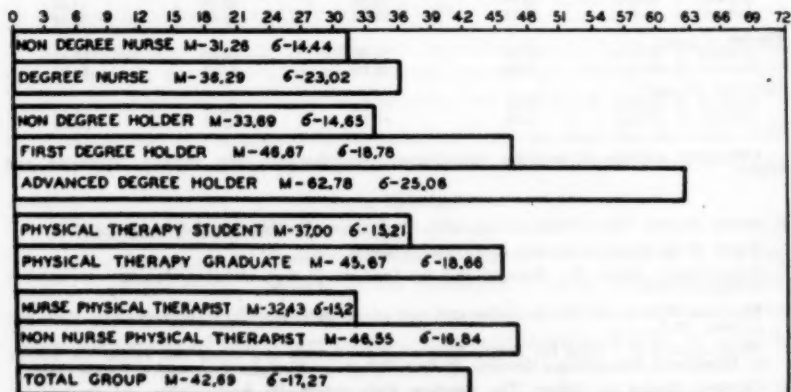
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2. Report of the Baruch Committee on Physical Medicine, April, 1944.
3. WANGENSTEEN, OWEN H.: Research and the Graduate Student, *American Scientist*, 35: 107-113 (January), 1947.
4. BINGHAM, WALTER V. D.: *Aptitudes and Aptitude Testing*, Harper & Brothers, New York and London, 1937.
5. HURD, ARCHER W.: What the Testing Program in the Schools of Nursing Has Taught Us, Bureau of Educational Research and Service, Medical College of Virginia, Richmond, Virginia, 1946.
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THE MCV COMPOSITE EXAMINATION FOR NURSES



THE STANFORD SCIENTIFIC APTITUDE TEST



THE MILLER ANALOGIES

Mean scores and standard deviations for battery of aptitude tests having a significant correlation with the Baruch Comprehensive Examination.

A Study of "Score Faking" on a Medical Interest Test

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and

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The importance of evaluating in the prospective medical student those personal qualities which we know will be decisively significant in determining the quality of his study and practice of medicine has long been recognized. In interviewing applicants and in scanning their records, we seek (more often than not with a sense of frustration) to answer the questions: Is he "well integrated" and does he have the right "sense of values?" Does he have that balance of stability and sensitivity that goes into the makeup of the good clinician? Is he really interested in practicing medicine, in doing the things a physician does? Or is his underlying motivation (conscious or unconscious) the prestige of the profession and the promise of financial reward?

Current methods of making judgments concerning these personal factors (personal interview, recommendation, impression derived from applicant's photograph, consideration of applicant's general background) are subjective, unreliable and admittedly inadequate procedures. The desirability of developing and utilizing objective methods of assessing these important non-intellectual aspects of personality has been emphasized repeatedly. The difficulty involved in such a task is conceded by all and the possibility of its successful accomplishment denied by some.

In a recent paper Jacobsen¹ made an important and stimulating contribution to this problem in reporting on the experimental evaluation of certain existing tests of personality and vocational interest. In general, moderately positive results were obtained with these tests (which, it should be noted, were not specifically designed to aid in medical student selection) suggesting that the task of finding objective measures is not a hopeless one and that experimentation designed to develop more effective techniques is certainly indicated. Among the tests experimentally utilized by Jacobsen was the Strong Vocational Interest Blank, a well known vocational interest inventory. Since this test is widely used in vocational guidance work and is convenient to give, its employment as an aid in selection is immediately suggested. Indeed, the Strong test already forms part of the battery of admission tests at certain medical schools.

It is the purpose of this paper to report a minor study on a problem which arises in connection with the use of the Strong test in the selection of medical students. It is hoped that the results will aid in the critical employment of the

1. JACOBSEN, C. F.: Interest and attitude as factors in achievement in medical school. *J. A. A. M. Colls.*, 21; 152-159, 1946.

test where it is utilized in a practical way for selection purposes and will point up a factor which must always be considered in the development of "interest" and "personality" tests which are designed for the selection of candidates in any field.

The problem concerns the possibility of "score faking" on the test, i. e., the possibility that the applicant can or will alter his responses to the test items in such a way as to obtain a "good" score. This problem does not usually arise in tests of intelligence or achievement in which we try to ascertain what the subject can do or what he knows since the presumption is that he will do the very best he can. But in a test like the Strong test we merely ask the subject what he does or likes or wishes and the possibility of a less-than-frank reply is evident. The question then arises as to the susceptibility of the test scores to deliberate "faking" on the part of the subject. It is obvious that if the test is of such a nature that the applicant is easily able to answer the questions in the way they "should" be answered, the value of the test as a selection device has serious limitations.

To investigate the susceptibility of the Strong test to "score faking," the test was given under normal conditions to a group of 34 undergraduate college students, 3 of whom had indicated medicine as their vocational goal, but the majority of whom were planning to enter the fields of education and the social sciences. Seven had indicated chemistry as their vocational goal. The students were asked to take the test to aid in the collection of data for a normative study of the vocational interests of undergraduates and no special mention was made of medicine. The vocational guidance value of the test results to the individual student was mentioned as an additional motivating factor and it was emphasized that the value of the results both for the investigators and for the individual student depended on frankness and honesty in response. Two days later, the students were asked to take the test again to provide data for another investigation, viz., the susceptibility of the test to "score faking." They were requested to try to answer the questions in such a way as to obtain as high a "physician interest" grade as possible.

RESULTS.—The results obtained in respect to the "physician" scale of the test are given in table 1 which shows the distributions of grades of the group under

TABLE 1.—DISTRIBUTIONS OF GRADES OF STUDENTS TAKING THE TEST UNDER NORMAL CONDITIONS AND UNDER CONDITIONS OF "SCORE FAKING"

N = 34		
Initial Test Under Normal Conditions		Retest Under "Score Faking" Conditions
Number of Cases	GRADE	Number of Cases
8	A	13
3	B+	6
8	B	7
7	B—	3
4	C+	5
9	C	0
Median Grade = B—		Median Grade = B+

the two conditions of testing. It will be noted that there was a significant shift in the distribution of grades in the direction of high medical interest. The median grade of the group, when taking the test under normal conditions, is B—, which would indicate lack of positive interest in medical work. The median grade, when taking the test under "score faking" conditions, is B+, which would indicate positive interest in medical work.

TABLE 2.—INDIVIDUAL SHIFTS IN MEDICAL INTEREST GRADE FROM NORMAL TO "SCORE-FAKING" CONDITIONS (N—NORMAL GRADE; S—"SCORE-FAKING" GRADE)

Student	MEDICAL INTEREST GRADE					
	C	C +	B —	B	B +	A
E. H. A.	(N)					(S)
L. S.	(N)					(S)
N. G.	(N)					(S)
K. E. A.	(N)			(S)		
E. C.	(N)			(S)		
T. G. F.	(N)			(S)		
J. S.		(N)			(S)	
A. D.			(N)			(S)
D. D.			(N)			(S)
M. J. H.			(N)			(S)
B. L.			(N)			(S)
L. S.		(N)		(S)		
M. C. M.			(N)		(S)	
M. A. F.			(N)		(S)	
B. A. L.				(N)		(S)
J. L.				(N)		(S)
E. C. S.				(N)		(S)
R. D. S.				(N)		(S)
H. F. L.	(N)	(S)				
P. M.	(N)	(S)				
A. T. S.	(N)	(S)				
C. E. G.			(N)	(S)		
M. K. L.				(N)	(S)	
R. W.				(N)	(S)	
F. B.		(NS)				
G. W.		(NS)				
M. Y. B.				(NS)		
H. S.				(NS)		
E. H. T.					(NS)	
M. E. H.						(NS)
L. M. W.						(NS)
J. E. B.			(S)		(N)	
C. L. H.			(S)		(N)	
A. B.			(S)			(N)

The shifts in grades from initial test to retest of the individual students are shown in table 2. It will be noted that the greatest gains in grade were made by the students who initially made low grades on the test. This is to be expected both because of the possibility of a greater maximum gain when initial grade is low and also because of the tendency of extreme scores in any series of measurements to "regress to the mean" on reexamination, if the measurements are not perfectly reliable.² Conversely, it will be noted that 3 of the 6 students

2. For discussions of the clinical significance of statistical "regression to the mean," see: JUNO, F. T.: Centripetal drift; a fallacy in the evaluation of therapeutic results. *Science*, 87: 461-462, 1938; and HARRIS, R. E., and THOMPSON, C. W.: The relation of emotional adjustment to intellectual function. *Psychol. Bull.*, 44, 283-287, 1947.

who made high grades on the initial test actually made lower grades under "score faking" conditions. These negative shifts in grade are in part explainable by the "regression to the mean" trend.

DISCUSSION

The findings clearly indicate that the medical interest grade on the Strong test is quite susceptible to "score faking." A significant proportion of students with a lack of interest in medicine, as measured by the test, possess sufficient sophistication and insight into the interests of physicians to achieve a high grade on the test, if they deliberately set out to do so. This does not mean, of course, that all applicants would deliberately alter their answers to achieve a high grade. However, it is a reasonable assumption that some applicants would do so and thus the discriminative value of the test would be impaired seriously. There is also the problem of the effect of unconscious suggestive influence working on the consciously honest applicant. If an applicant "knows" that a certain answer is the characteristic response of physicians, it is easy for him, since he identifies himself with physicians, to believe quite sincerely that this answer represents his own characteristic response.

The findings suggest that in the selection of students high "physician interest" grades on the Strong test should be interpreted with extreme caution, if they are to be taken seriously at all. On the other hand, there would seem to be no reason why low grades may not be accepted at face value as suggesting lack of positive interest in medical work. However, it should certainly be borne in mind that this test, like any other, has its limitations and should be utilized as a partial index, never the sole criterion, of medical interest.

Experimental work concerned with the development of new and more adequate techniques for the objective assessment of medical interest is being done in many centers of medical education. In this work the problem of the possibility of "score faking" when the psychological techniques developed are transferred from the experimental situation to the actual selection situation must be considered and made the subject of empirical evaluation.

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FRED C. ZAPFFE, Editor

January, 1948

The Borden Award

The Borden Company Foundation, Inc., has established a Borden Award in Medical Sciences to be administered by the Association of American Medical Colleges. This Award will consist of \$1,000 in cash and a gold medal to be awarded in recognition of outstanding clinical or laboratory research by a member of the faculty of a medical school which is a member of the Association of American Medical Colleges. Five successive awards have been established, the first award being made in 1947. The Award in any year will be made for research which has been published during the preceding five calendar years.

No person may receive more than one Borden Award for the same research, although he may receive a later Award for a different research project. If two or more persons who have collaborated in a project are selected for an Award, the gold medal and check shall be presented to the group, and bronze replicas of the medal presented to each of the collaborators. The Association may refrain from making an Award in any year in case no person reports research of the quality deserving an Award. Only one Award shall be made during any one year.

Regulations Regarding Nominations:

1. Nominations may be made by any member of the faculty of a medical school which is a member of the Association of American Medical Colleges.

2. Five copies of each nomination should be forwarded to the Secretary of the Association together with five sets of reprints bearing on the investigation for which the nomination is made. The reprints will be returned if requested.

3. Nominations must be based on

work published during the preceding five years by members of the faculties of the medical schools in the United States and Canada which are members of the Association.

4. The nomination should contain the academic and scientific history of the candidates and a reasoned statement of the basis for the nomination.

5. A nominee who fails to receive the Award may be nominated for the Award for the same work in a subsequent year. Nominations made for one year will not be carried over to a succeeding year but must be renewed if the candidate's work is to be considered during the succeeding year.

6. Nominations must be completed and in the hands of the committee before March 1, 1948. Nominations should be sent to Dr. Fred C. Zapffe, Secretary, Association of American Medical Colleges, Five South Wabash Avenue, Chicago 3, Illinois.

The Committee for the Borden Award in Medical Sciences consists of the following: E. A. Doisy, Chairman, St. Louis University; Jas. M. McNaught, University of Colorado; Brian Blades, George Washington University; John B. Youmans, University of Illinois; Chas. H. Best, University of Toronto.

* * *

College Year in Mexico

A group of recognized American educators, in cooperation with the National University of Mexico has been organized to set up an undergraduate program of study in the Spanish language, art and related fields for American students. Courses will be bilingual and coeducational. They will be offered in historic Cuernavaca and will be patterned after

the American residential college, scheduled on the Northern Academic calendar and provide all facilities for healthful, gracious living. The program is approved by the Veterans' Administration. Time: Spring semester, February 7 to June 4, 1948. Summer term, June 14 to September 10; Fall semester opens September 13, 1948.

The president of the Board of Trustees is Dr. Guy E. Snively, Executive Director, Association of American Colleges. The resident director at Cuernavaca is Dr. Paul P. Rogers, professor of Spanish, Oberlin College.

Inquiries should be addressed to College Year in Mexico, Inc., 209 South State Street, Chicago 4, Illinois.

* *

Committee on Internships and Residencies, Regional Divisions (December, 1947)

Region 1. L. R. Chandler, Stanford Univ., Chairman	California	4	U. California
	Arizona	0	Stanford
	Nevada	0	Coll. Med. Evang.
		<u>4</u>	U. So. Calif.
Region 2. D. W. E. Baird, Univ. Oregon, Chairman	Idaho	0	U. Oregon
	Montana	0	
	Oregon	1	
	Washington	0	
		<u>1</u>	
Region 3. Ward Darley, Univ. Colorado, Chairman	Colorado	1	U. Colorado
	New Mexico	0	U. Utah
	Utah	1	
	Wyoming	0	
		<u>2</u>	
Region 4. J. P. Tollman, Univ. Nebraska, Chairman	Kansas	1	U. Kansas
	Nebraska	2	U. Nebraska
	Missouri	2	Creighton
	No. Dakota	0	St. Louis U.
	So. Dakota	0	Washington U.
		<u>5</u>	
Region 5. Warren T. Brown, Baylor Univ., Chairman	Texas	3	U. Texas
	Oklahoma	1	Baylor
		<u>—</u>	Southwestern
		4	U. Oklahoma
Region 6. Vernon W. Lippard, Louisiana State, Chairman	Louisiana	2	Louisiana State
	Arkansas	1	Tulane
	Mississippi	0	Univ. Arkansas
		<u>3</u>	
Region 7. A. C. Bachmeyer, Univ. Chicago, Chairman	Illinois	4	U. Illinois
	Indiana	1	U. Chicago
	Iowa	1	Northwestern
		<u>—</u>	Loyola
		6	U. Indiana
			U. Iowa

Region 8. Myron W. Weaver, U. Minnesota, Chairman	Minnesota	1	U. Minnesota
	Wisconsin	2	Marquette
		<u>3</u>	U. Wisconsin
Region 9. Stanley E. Dorst, U. Cincinnati, Chairman	Michigan	2	U. Michigan
	Ohio	3	Wayne
		<u>—</u>	Ohio State
		5	Western Reserve U. Cincinnati
Region 10. Roy R. Kracke, Univ. Alabama, Chairman	Alabama	1	U. Alabama
	Florida	0	U. Georgia
	Georgia	2	Emory
		<u>3</u>	
Region 11. C. C. Carpenter, Bowman Gray, Chairman	Kentucky	1	U. Louisville
	No. Carolina	3	U. No. Carolina
	So. Carolina	1	Duke
	Tennessee	3	Bowman Gray
		<u>—</u>	U. So. Carolina
		8	U. Tennessee Vanderbilt Meharry
Region 12. W. A. Bloedorn, George Washington, Chairman	D. Columbia	3	George Washington
	Delaware	0	Howard
	Maryland	2	Georgetown
	Virginia	2	Johns Hopkins
	W. Virginia	0	Maryland
		<u>—</u>	U. Virginia
		7	Med. Coll. Virginia
Region 13. Isaac Starr, U. Pennsylvania, Chairman	Pennsylvania	6	Temple
	(Some of New Jersey)	0	Woman's
		<u>—</u>	Jefferson
		6	Hahnemann
			Pittsburgh Pennsylvania
Region 14. D. G. Friend, Harvard, Chairman	Maine	0	Boston U.
	Massachusetts	3	Harvard U.
	New Hampshire	0	Tufts
	Rhode Island	0	U. Vermont
	Vermont	1	
		<u>4</u>	
Region 15. J. A. Curran, Long Island, General Chairman	New York	9	New York U.
	New Jersey	0	Columbia
	Connecticut	1	Cornell
		<u>—</u>	Buffalo
		10	Long Island
			Rochester
			Albany
			Syracuse Yale N. Y. Med. Coll.

Anent Questionnaires

This seems to be the age or era of questionnaires. The number of persons who seek information through the agency of a questionnaire is increasing by leaps and bounds. This is particularly true in the field of medical education and everything ancillary thereto. Deans are beginning to complain vociferously about being compelled to give up a large amount of their time—of which they have none too much as it is ordinarily—filling in questionnaires. They do not object to doing this work when it is warranted and sponsored by a reliable source but, nevertheless, they would like to get some relief. They are turning to the Association for this relief.

Nearly twenty-five years ago a similar situation existed. It was the beginning of the questionnaire era. The Executive Council of the Association took the matter under advisement and decided that no attention be paid to a questionnaire unless it had been approved by the Council. Members of the Association were informed of that ruling, although it could not be mandatory. Any college which was willing to answer every questionnaire submitted was at liberty to do so, but those colleges which felt that they were being imposed on and that too much valuable time was being spent answering these questionnaires were asking for relief. An official pronouncement coming from the Association of American Medical Colleges would, it was felt, forestall criticism that deans are unwilling to cooperate. The situation today is again what it was twenty-five years ago. Would not, then, a pronouncement similar to the above be helpful to overworked deans and their associates? The Executive Council stands ready to cooperate in the movement to censor questionnaires.

♦ ♦

Percy T. Magan

Dr. Percy T. Magan of Los Angeles, California, died in December of a heart attack. Dr. Magan was for many years the leading spirit in the College of Medical Evangelists, the medical school of

the Adventist Church. He was dean, then president. He had had a distinguished career as an educator. Personally, he was a most delightful person, a good friend, without animosity toward anyone and always ready and willing to lend a helping hand where one was needed. To know him was a real pleasure. He was always keenly interested in medical education and until his retirement a few years ago he never failed to attend the meetings of the Association and to participate actively in its deliberations.

♦ ♦

Liaison Officers from Government Medical Services

In order to establish closer contact with the government medical services on matters relating to medical education, it was voted unanimously at the annual meeting of the Association held in Sun Valley, Idaho, October, 1947, to suggest to the surgeons general of the Army, the Navy, the Public Health Service and the Veterans' Administration that they appoint a liaison officer who would attend all the meetings of the Executive Council of the Association and represent his particular service in the discussions on problems dealing with medical education.

The Surgeons General for these four services agreed whole-heartedly with the proposition and have appointed the following officers to act as liaison officers:

U. S. Army Medical Department: Brigadier General George E. Armstrong, Deputy Surgeon General. If General Armstrong cannot service for some reason occasioned by other duty, Colonel Walter H. Moursund will serve in his stead.

U. S. Navy, Bureau of Medicine and Surgery: Rear Admiral Herbert Lamont Pugh, Deputy and Assistant Chief of the Bureau.

U. S. Public Health Service: Medical Director W. P. Dearing, Chief, Division of Commissioned Officers.

Veterans' Administration: Dr. Edward H. Cushing, Assistant Medical Director for Research and Education.

College News

University of South Dakota School of Medicine

Dr. Albert M. Harris, associate professor of pathology, has been selected by the American Society of Clinical Pathologists as counselor for South Dakota. Golden hamsters have been added to the list of a wide variety of animals which the medical school uses for research.

Training Navy V-12 medical units during the war has earned a bronze "Mark of Commendation" tablet from the Navy for the State University.

Dr. H. Grant Skinner, formerly assistant professor of pharmacology at the University of Alberta, Edmonton, Canada, has been appointed assistant professor of pharmacology.

Practicing physicians and surgeons in Vermillion, Yankton and Sioux Falls, and in Sioux City, Iowa, are doing clinical teaching for the school of medicine. Students are taken by bus to the cities where the doctors are located. Surgery, applied anatomy and clinical radiological anatomy are being taught by Dr. C. B. McVay of Yankton. Dr. F. J. Abts of Yankton is teaching the course in gynecology, and Dr. Robert Livingston, of Yankton, is teaching the course in internal medicine. Physical diagnosis is being taught by Dr. Hugo Andre and Dr. Harold Hansen of Vermillion. Dr. E. M. Stansbury of Vermillion teaches obstetrics, and Dr. George T. Jordan, of Vermillion, teaches the course in examination of the eye, ear, nose and throat, which is a part of the course in physical diagnosis. Lectures in pediatrics are given by Dr. Will Donahoe of Sioux Falls. Lectures and demonstrations to the freshmen on psychodynamics will be given during the second semester by Dr. Philip Pugh of Sioux City, Iowa, who will also give lectures and demonstrations to the sophomores on psychosomatic medicine. Dr. R. N. Larimer of Sioux City, Iowa, will give lectures and clinic demonstrations during the second semes-

ter to the sophomores in internal medicine. Material that is difficult to get for class work is being furnished through the cooperation of Dr. Don B. Williams and Dr. F. W. Haas of the State Hospital at Yankton.

A former member of the University of Pittsburgh biology department, Dr. Earl B. Scott, has been appointed associate in anatomy. The Sacred Heart Hospital of Yankton is cooperating in furnishing classrooms and other facilities in order that the medical students may get clinical teaching in the various subjects required.

Plans for the 24 second-year medical students include a four-week assignment to doctors all over South Dakota next spring just before the end of the second semester. Registration of medical students for the school year, 1947-48, has been completed with a total of 54 students. Of the 30 freshmen students, 23 are from South Dakota. Students from South Dakota account for 74 per cent of the total enrollment, compared with 60 per cent in former years.

The Office of Naval Research has allocated \$4,700.00 for the study of nerve and allied tissues. The work will be under the direction of Dr. W. L. Hard, professor and chairman, department of anatomy. The Hoffmann-La Roche Company has awarded a research grant to Dr. Donald Slaughter of \$850.00 to carry out work on synthetic analgesics. The William R. Warner Co. has allocated \$700.00 to aid in analgesic research. This work is under the direction of Dr. Donald Slaughter.

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University of Colorado School of Medicine

The University of Colorado Medical Center now is giving training in psychosomatic medicine to graduate students in the University of Utah school of medicine. These students spend three months

in the psychiatric liaison department of the Medical Center, receiving training in psychological aspects of medicine. A new approach to medical education is being put into operation this fall. The program is designed to meet the primary medical need of the state for more general medical practitioners. In addition to emphasizing a broad premedical background and medical skills, the program stresses the broader aspects of medical practice, such as the importance of a doctor's relationship with his patient, with the community and with society at large. Young medical students learn about normal human growth and development, as well as how to treat human illness. Through supervised clinical work and through discussions with practicing physicians and visiting specialists, students can correlate their classroom theory with real life experience.

A grant of \$4,000 has been made by the Rockefeller Foundation to the department of industrial hygiene. The grant will make possible the purchase of equipment to enlarge the scope of activities carried on by the department.

The department of industrial hygiene now is extending its work to include fatigue and disability studies, high altitude studies, and results of acclimatization as it affects workers. Dr. Frank Princi is head of the department.

A grant of \$25,000 has been received by the University of Colorado Medical Center from the National Advisory Cancer Council of the U. S. Public Health Service to establish a department for the teaching of early cancer diagnosis and treatment to medical students, interns, residents and practicing physicians. Dr. John M. Foster, Jr., professor of surgery, will head this activity.

Dr. John A. Lichty, of Rochester, N. Y., has been appointed assistant professor of pediatrics. Dr. Lichty's primary responsibility will be that of pediatric consultant to the State Health Department. He will be in charge of the postgraduate pediatric educational program of the Colorado State Department of Health and the University of Colo-

rado. He also will assist in the development of the rural intern training program, the premature baby program, well baby conferences, and the rheumatic fever program, which are the joint responsibilities of the State Health Department and the university.

The sum of \$22,302.69 was accepted by the regents of the university for research to be carried on at the Medical Center under the leadership of Dr. Henry Swan II, associate professor of surgery. The money will be used for the establishment of a cardiovascular research laboratory. The trust fund is being given to the university by the recently created Henry Strong Denison Medical Foundation, Inc., a Delaware corporation, of which Dr. Florence Sabin of Denver is vice president. The trust will supplement research activities being carried on now at the Medical Center and totaling nearly one-half million dollars.

The foundation was created by members of the Denison family in memory of Dr. Charles Denison, early pioneer Denver doctor, and his son, Dr. Henry Strong Denison, a graduate of the University of Colorado School of Medicine. Other gifts made to the university by the family include the Denison Memorial library and auditorium on the Medical Center campus here and the Denison building on the campus at Boulder.

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University of Wisconsin Medical School

The Medical School and the Wisconsin Anti-Tuberculosis Association celebrated the Eighth Annual Dearholt Day November 18, 1947. Dr. Hugh E. Burke, medical director, Royal Edward Lorentian Hospital of Montreal, Canada, discussed "Experimental Pulmonary Tuberculosis—Primary and Reinfection," and Dr. George W. Wright, clinical physiologist of the Edward L. Trudeau Foundation, Saranac Lake, N. Y., presented material concerning "Present Day Methods of Studying Pulmonary Function."

Dearholt Day began seven years ago,

when the Dearholt Day Program was first presented as a memorial to the late Dr. Hoyt E. Dearholt who was executive secretary of the Wisconsin Anti-Tuberculosis Association, from 1908 until his death in 1939.

Phi Delta Epsilon, medical fraternity, presented the second annual Arthur S. Loevenhart Lecture November 6, 1947. It was given by Dr. Wilder G. Penfield, professor of neurology and neurosurgery at McGill University. The subject of the lecture was "Psychical Seizures." This annual lectureship which is sponsored by Phi Delta Epsilon Medical Fraternity is presented in honor of the late Dr. Arthur S. Loevenhart, who held the chair of pharmacology at the University of Wisconsin Medical School from the time of its creation until his death.

The medical school announces the presentation of its Intensive Course in Pediatrics. The course content is fundamentally practical and focused for the needs of the practitioner of general medicine. This offering is to be under the direction of Dr. J. E. Gonce, Jr., professor of pediatrics, with the assistance of Dr. H. K. Tenney, Jr., and Dr. K. B. McDonough of the professorial staff of the pediatrics department. A partial listing of subjects to be given includes, "The Care and Feeding Problems of the Premature Infant," "Diabetes in Infants and Children," "The Rh Problem and Its Management," "Respiratory Disease and Tuberculosis in Children," as well as other aspects of problems currently encountered in pediatrics. In addition there will be ward rounds and conferences.

The course will be of five days' duration, starting February 23, 1948. The charge will be \$25. The maximum enrollment will be fifteen physicians; the minimum, six matriculants. Applications should be made to Llewellyn R. Cole, M.D., Coordinator of Graduate Medical Education, the University of Wisconsin Medical School, 418 North Randall Avenue, Madison 6, Wisconsin.

A course is to be presented from January 26 through January 30, 1948, in

physical medicine and its practical applications for general practitioners. This offering is to be under the direction of Dr. H. D. Bouman, head of the department of physical medicine, with the assistance of members of that department and other members of the medical school faculty. It will include the uses of heat, massage, whirlpool baths and wax baths, as well as indications for diathermy and practical demonstration and instruction in them. The uses and applications of ultraviolet radiation will be discussed with particular reference to its value as a therapeutic measure in dermatology. The physiology, pathology and metabolism of muscle will be presented and diseases of the lower motor neuron are included. Electromyography, active and passive exercise, occupational therapy, and the application of physical therapeutic measures in the care of poliomyelitis will be discussed and demonstrated.

This is to be a full time offering for physicians with a maximum enrollment of fifteen and a minimum of six individuals. The charge will be \$25 and application should be made to Llewellyn R. Cole, M.D., Coordinator of Graduate Medical Education, the University of Wisconsin Medical School, 418 North Randall Avenue, Madison 6, Wisconsin.

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Yale University School of Medicine

Dr. John F. Fulton, chairman of the department of physiology, will deliver five lectures at the London School of Hygiene and Tropical Medicine on the general subject: "Aviation Medicine in Its Preventive Aspects: An Historical Survey." This lectureship is an endowment of the University of London. The importance of applying experimental advances in cancer to persons suffering from the disease was recognized with the establishment of a special section in its department of surgery dealing with oncology. Dr. Samuel C. Harvey has retired from the William H. Carmalt Professorship of Surgery, and the chairmanship of the department of surgery, to become Yale's first professor of sur-

gery with special reference to oncology. Doctor Harvey will assume responsibility for stimulating Yale's widespread attack on the cancer problem and also for training medical students and physicians in the special problems involved in the diagnosis, treatment and care of this disease. Doctor Harvey's new chair in surgery is supported by grants from the National Cancer Institute of the U. S. Public Health Service and Mr. Robert E. Hunter, Class of 1911 S., of Pasadena, California.

Dr. Grover F. Powers, chairman of the department of pediatrics of the Yale School of Medicine, has been honored by the American Academy of Pediatrics with the Borden Award, granted for "outstanding research in the nutrition of infants and children."

Complete reorganization of the department of psychiatry at Yale University School of Medicine, New Haven, with emphasis on the newest methods of treating mental illness, expanded instruction of medical students and residency training in cooperation with the Veterans' Administration, was announced October 2. Personnel changes include the appointment of Drs. Frederick C. Redlich, New Haven, executive officer of the department; Burness E. Moore, New Haven, physician-in-charge of the psychiatric inpatient clinic, and Richard J. Newman, Maryland, N. Y., physician-in-charge of the outpatient clinic. Dr. Lawrence S. Kubie, New York, has been appointed clinical professor of psychiatry; Dr. Robert P. Knight, Stockbridge, Mass., clinical professor, and Dr. Paul I. Yakovlev, Middletown, as associate clinical professor. Increasing emphasis will be placed in the clinic on the psychoneuroses and on psychosomatic disorders.

Dr. Gustaf E. Lindskog, associate professor of surgery, has been appointed executive officer of the department of surgery, following the retirement of Dr. Samuel C. Harvey.

The U. S. Public Health Service has granted funds amounting to \$71,756 for basic medical research in penicillin and syphilis for work being done under the

direction of Dr. Paul D. Rosahn, New Britain, who has been conducting studies on syphilis in experimental animals for the last two years. He is an assistant clinical professor of pathology at Yale Medical School, New Haven.

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University of Texas Medical Branch

Dr. Percival Bailey, distinguished professor of neurology at the University of Illinois School of Medicine, Chicago, delivered the annual James Greenwood Lecture in Neurology. His subject was "The Organization of the Cerebral Cortex."

Dr. Ludwik Anigstein, professor of preventive medicine, received a grant of \$2,500 for the support of special studies on rickettsial diseases, from the Lederle Laboratories of New York.

In cooperation with the Texas State Health Department the medical branch offered a special tumor conference, November 12th to 15th, for the benefit of physicians in the southwest area. Guest speakers included Dr. Axel N. Arneson, associate professor of radiology, Washington University School of Medicine; Dr. M. B. Dockerty, consulting surgical pathologist, Mayo Clinic; Dr. Joseph Farrow, attending surgeon, Memorial Hospital, New York; Dr. Herbert E. Schmitz, professor of gynecology, Loyola University School of Medicine; Dr. W. F. Mengert, professor of gynecology, Southwestern Medical College, Dallas; Dr. Stuart A. Wallace, professor of pathology, Baylor Medical College, and Dr. Clarence P. Oliver, professor of zoology, University of Texas.

Dr. Philip Cavelti of the University of Bern and of the Hooper Foundation for Medical Research, University of California, gave a special lecture October 20th on rheumatic conditions in relation to vascular disease.

Dr. Harold Himwich, director of the physiology division of the Army Chemical Center, Maryland, participated in a special seminar on asphyxia and brain

metabolism in relation to psychiatric disorders.

Dr. Fe del Mundo, professor of pediatrics at the University of Santo Tomas and director of the Children's Hospital, Manila, has been appointed visiting lecturer in pediatrics. She will spend a month teaching the care of infants and children in the tropics.

A. Packchianian, Ph.D., director of the Laboratory of Microbiology, was guest speaker at the Congress of Medicine held in Mexico City in November. Dr. Packchianian reported on his studies on Chagas' Disease in North America and on leishmaniasis.

Dr. Charles E. Hall, formerly associated in endocrine research with Dr. Hans Selye in Montreal, has been appointed assistant professor of physiology. He will cooperate with Dr. Raymond Gregory, professor of medicine, in the development of an endocrine clinic in the John Sealy Hospital. Dr. Granville A. Bennett, professor of pathology, University of Illinois College of Medicine, gave a special lecture December 4th on "The Pathology of Fibrous Dysplasia of Bone." Dr. Clifford A. Sweet, pediatrician of Oakland, California, gave a series of special lectures and seminars during the first week in December. Doctor Sweet discussed problems relating to bone growth and development in children, and methods of child management. John A. Sinclair, Ph.D., professor of anatomy, has been elected president of the Texas Academy of Science.

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*University of Illinois
College of Medicine*

Dr. Julius H. Laat has been appointed assistant professor of pharmacology and toxicology. Dr. James A. Bain and Dr. Virgil A. Gant have been appointed research associates. Dr. Robert S. Lewy has been appointed clinical assistant professor of otolaryngology.

Dr. M. M. Suzman, a member of the department of medicine of the University of Witwatersrand, Johannesburg, South Africa, delivered an illus-

trated lecture on the "Clinical Aspects of Nutritional Deficiency Diseases as Seen in South Africa" last November.

The Gehrman Lectures were delivered by Dr. John R. Paul, of the department of medicine of the Yale University School of Medicine. The subject was "Poliomyelitis."

Four research fellowships in medicine, dentistry and pharmacy, at a stipend of \$1,000 a year, are available. The fellowship year begins July 1, 1948. For further information, apply to the Secretary of the Committee on Graduate Work, 1853 West Polk Street, Chicago 12, Illinois.

A new postgraduate course of six lectures to be known as "Oral Surgery I—Fundamentals of Oral Surgery," will start January 5, 1948, under the direction of Dr. Bernard G. Sarnat, acting head of the department of oral and maxillofacial surgery. For further information, address Dr. Isaac Schour, 1853 West Polk Street, Chicago 12.

Dr. Otto A. Bessey, chief of the division of nutrition and physiology at the Public Health Research Institute of New York City, has been appointed professor and head of the department of biochemistry.

A department of clinical medicine has been established for the purpose of emphasizing the interdependence of the basic sciences and the practice of medicine. Dr. A. C. Ivy, vice president of the university, will head the department, assisted by four faculty members and five research fellows. The department is offering three courses on "Advanced Physiology of the Digestive System," "Seminar in Clinical Sciences," and "Research in Clinical Science" for graduate students, and a fourth course, "Physiology of Symptoms" for undergraduate medical students.

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*New York University
College of Medicine*

The directors of the Standard Oil Company have authorized a contribution of \$250,000 to the Medical Center Fund

—\$100,000 to be used for the construction and initial equipment of laboratories in the Institute of Industrial Medicine; \$50,000 for clinical facilities in the University Hospital; \$50,000 in support of the general program and \$50,000 for the support of original research relating to the petroleum industry.

Grants for research: \$138,000 for research in infantile paralysis; \$67,500 for research in rheumatic fever and other projects; \$55,000 for studies on the prevention and cure of heart disease and about \$20,000 for research on cancer. These grants are in addition to gifts and pledges totaling more than \$2,500,000 toward the capital funds.

Dr. Donald A. Covalt, director of medical rehabilitation of the Veterans' Administration, has been appointed associate professor of rehabilitation; Dr. Nila K. Covalt has been appointed assistant professor of physical medicine.

The Samuel H. Kress Foundation has made a conditional gift of \$1,000,000 to the Medical Center Fund. The Board of Trustees of the Beth Israel Hospital gave \$50,000 for a study of the relief of heart disease.

The Laboratory of Research Toxicology, initial unit of the recently inaugurated Institute of Industrial Medicine of the New York University-Bellevue Medical Center, has been established under the direction of Dr. Norton Nelson. Doctor Nelson, former research associate of the Children's Hospital Research Foundation in Cincinnati, and assistant professor of biological chemistry at the University of Cincinnati, has been named associate professor of industrial medicine.

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Columbia University College of Physicians and Surgeons

Columbia University received \$28,376 from the American Cancer Society, Inc., for research and study on cancer. The funds were payment on part of the numerous projects underway on cancer research at the University. One of the largest gifts—\$7,368—was for

the continued study of the application of the isotope technique to the problems of clinical medicine in man. The work is being carried on by the department of biochemistry. Among the other projects provided for in the funds were: research on cells in vitro, and research on nucleic acid of normal and cancer tissues, both by the department of surgery; and a study of animal tissues, by the department of medicine. In addition, Columbia received \$2,250 from the New York City Cancer Committee of the American Cancer Society for clinical research on gynecological cancer to be carried on by the department of obstetrics and gynecology.

Eleven staff members of hospitals have received academic appointments at Columbia as a result of the university's recently announced plan of affiliation with St. Luke's Hospital and Mary Imogene Bassett Hospital in Coopers-town. Dr. William F. MacFee, director of surgery at St. Luke's, was named clinical professor of surgery. Assistant professors of surgery are Drs. Benjamin Shore, Jr., and Paul C. Morton; assistant clinical professors of medicine, Drs. John J. Keating, Albert C. Herring and Waldo B. Farnum. Staff members of the Goldwater Memorial Hospital, Welfare Island, who received appointments are Drs. Margaret Bevans and Robert W. Berliner. At the Mary Imogene Bassett Hospital Dr. James Bordley III was appointed associate clinical professor of medicine and Dr. Monroe A. McIver, associate clinical professor of surgery.

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Indiana University School of Medicine

A research grant of \$50,000 by the James Whitcomb Riley Memorial Association for two projects to be carried on at the James Whitcomb Riley Hospital for Children, has been announced. An investigation into endocrine glands and development will be headed by Dr. John J. Mahoney, assistant professor of experimental medicine. Dr. Dwain N. Walcher, assistant professor of pediatrics, will conduct an investigation into the

infectious diseases of children, elaborating a research project which he initiated some time ago.

Administrative reorganization, involving the establishment of a department of microbiology and the elevation of the divisions of orthopedic surgery, anesthesia, radiology and gynecology to the status of departments, has been announced. The new department of microbiology is headed by Dr. Randall L. Thompson, formerly of the Medical College of Virginia, who is continuing research into growth requirements of viruses and the chemotherapy of viral diseases. Dr. George J. Garceau, professor of orthopedic surgery and chairman of the division of orthopedic surgery, continues as chairman of the department of orthopedic surgery. Appointment of Dr. William A. Summers as assistant professor and Dr. Sherman A. Minton, Jr., as instructor in the department of microbiology. Dr. V. Kenneth Stoelting has been named chairman of the department of anesthesiology and assistant professor of anesthesia. In addition he is serving as chief of anesthesia for the hospitals of the Indiana University Medical Center. Dr. J. Martin Miller has been named an instructor in the department of biochemistry and pharmacology.

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Tulane University of Louisiana School of Medicine

Dr. George E. Burch, associate professor of clinical and experimental medicine, was recently appointed chairman and professor of the department of medicine, succeeding the late Dr. John Herr Musser, who died September 5, 1947, after serving for 23 years as head of the department.

The first review course of the current year in the division of graduate medicine was given November 17-21. The 5-day course was devoted to pediatrics, Dr. Hiram W. Kostmayer, director, announced.

Six other review courses will be available during the 1947-48 school year in

the graduate division. Others scheduled are: Electrocardiography, January 5-17; Gynecology, January 5-10; Obstetrics, January 12-17; Internal Medicine, January 10-31; General Surgery, March 15-20; Gastroenterology, March 1-6, and Pediatrics for specialists, March 8-12.

The executive board of the American Public Health Association has accredited the new degree course of master in public health (tropical medicine) in the school of medicine at Tulane University. The new course is the only one of its kind in the United States and is the second established in the world. The London School of Hygiene and Tropical Medicine offers a similar graduate degree.

Designed to meet the needs of tropical areas throughout the world, the course covers all fundamental phases of public health. Adequate instruction in prevention, control and treatment of tropical diseases is included in the course so that candidates, on completion, will be qualified to practice medicine and carry on public health activities in tropical areas. Dr. W. A. Sodeman, chairman of the department of tropical medicine and public health at Tulane, is in charge of the course.

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University of Utah School of Medicine

Dr. Robert Chambers, professor of cellular physiology, New York University, delivered a lecture on "The Properties of the Living Cell" on October 20. The third of a series of Tyndale Lectureships was given by Dr. Barry Wood, head, department of medicine, Washington University School of Medicine. He talked on "The Use of Antibiotics in the Treatment of Bacterial Infections" and "Studies in the Mechanism of Recovery in Acute Bacterial Pneumonia." Dr. Tracy M. Sonneborn, professor of biology, Indiana University, gave a lecture titled "Beyond the Gene" on October 13. At the annual meeting of the Western Society for Clinical Research held in San Francisco in Novem-

ber. Dr. Mark Nickerson of the department of pharmacology delivered a paper on "Protection Against Cyclopropane-Epinephrine Induced Cardiac Arrhythmias by Dibenamine and Other Agents;" Dr. Thomas F. Dougherty of the department of anatomy spoke on "The Plasma Cell Response in Immunized Animals;" Dr. J. Waldo of the department of medicine on "The Effect of Benzoic Acid on Penicillin Blood Levels and Renal Function," and Dr. H. H. Hecht of the department of medicine on "Observations on the Human Heart During Induced Hypoxia."

Dr. Sherman Dickman, recently a research associate in biochemistry, Columbia University, will assume the position of assistant professor of biochemistry.

Dr. Chi-Ping Cheng, instructor in physiology at Hsiang-Ya Medical College, Changsha, China, and traveling research fellow of the American Bureau for Medical Aid in China, is a visiting research fellow in the department of pharmacology. Dr. Chuan-Yen Wang, assistant expert, National Institute of Health, Nanking, China, and a Honan provincial government traveling scholar, is doing graduate work in the department of pharmacology.

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Northwestern University Medical School

A gift of \$50,000 for research in the degenerative diseases has been received from Walter S. Ross, to be known as the Mary and Walter S. Ross Research Fund. The gift will be used to support research in the diseases of adulthood and old age, such as heart and kidney ailments, high blood pressure, arthritis, and cancer.

The School of Speech and the Medical School of Northwestern University will expand their educational and clinical services in the fields of speech and hearing by establishing a new post-graduate training course in ear, nose and throat. Dr. Howard C. Ballenger, associate professor of otolaryngology, will supervise the new program, with Dr. Elmer W. Hagens, assistant professor

of otolaryngology, conducting a basic course in ear, nose and throat. Dr. George E. Shambaugh, Jr., assistant professor of otolaryngology, will teach a course in the fenestration operation.

Guidance in the selection of hearing aids will be a part of the new program and Dr. Raymond Carhart, director of the School of Speech's Hearing Laboratory on the Evanston campus, will supervise testing, oral rehabilitation, lip reading, auditory training and speech control before and after operations, thus coordinating medical and surgical work with the department of audiology.

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Washington University School of Medicine

With the addition of Dr. Thomas H. Hunter, New York, and Robert I. Watson, Ph.D., Pittsburgh, to the staff, Washington University School of Medicine now has three assistant deans under Dr. Robert A. Moore, dean. Dr. Hunter formerly was instructor in medicine at Columbia University College of Physicians and Surgeons, New York. Robert I. Watson, Ph.D., assistant professor of psychology at Carnegie Institute of Technology in Pittsburgh, 1946-1947, has become associate professor of medical psychology and assistant dean, acting as counselor to students. He received his Ph.D. from Columbia University, New York. Dr. Merl J. Carson continues as assistant dean and director of the division of postgraduate studies.

Washington University is conducting research on the cause of hypertension under a \$270,000 grant from the U. S. Public Health Service for a five year project. The research, now under way after a year of preparation, is under the direction of Dr. Henry A. Schroeder, associate professor of medicine.

Dr. Carl F. Cori and his wife, Dr. Gerty Cori, were awarded one-half of the 1947 Nobel Prize in physiology and medicine (\$24,290). Dr. Bernardo A. Houssay of Buenos Aires, Argentina, receives the other half.

Southwestern Medical College

Two grants totaling \$23,900 have been received from the Texas Division of the American Cancer Society and the National Foundation for Infantile Paralysis. Another grant of \$2,000 was made by the United States Standard Products Company of Woodworth, Wis., for expansion of the college's library.

A fund of \$18,900 was allocated by the Texas Division of the American Cancer Society for cancer control, treatment and research. The grant will be used for the following purposes: \$6,000 for establishment of a biophysics department, \$5,300 to equip the biophysics department and \$2,600 and \$5,000 for two studies of cancer in women.

Establishment of the biophysics department will enable the medical college to study the use of radioactive materials in cancer treatment and control. Dr. Allen Reid, former radioactivity researcher with the Manhattan atomic research project in New York City, is chairman of the biophysics department.

A grant of \$5,000 was made by the National Foundation for Infantile Paralysis for continued support of the college's research program on infantile paralysis. Dr. S. Edward Sulkin, professor of bacteriology and immunology, is director of the college's infantile paralysis research program.

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Medical College of Alabama

Dr. Edgar C. Sensenig has been appointed associate professor of anatomy. He was formerly assistant professor of anatomy at Tulane. He has received a research grant of \$6,700 from the National Institute of Health for studies on the vertebral canal and its contents. Dr. Thomas E. Hunt, of the department of anatomy, has received \$2,000 from the Cancer Research Division of the Donner Foundation.

A program of student teaching fellowships has been set up in the department of anatomy. These fellows take two years instead of one year to complete the work of the sophomore year. The

summer months will be devoted entirely to research.

The Thigpen-Cater Eye Hospital, commemorating Dr. Charles A. Thigpen and Dr. Job T. Cater, of Montgomery, Alabama, and built through the generosity of Dr. Thigpen, was dedicated November 2. The hospital is a division of the Medical College. Dr. Alston Callahan, professor of ophthalmology, is director of the new unit.

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*Western Reserve University
School of Medicine*

Western Reserve will undertake a long-term research program to study a selected small group of Cleveland families, preferably young couples with children. Each illness in every family under observation will be studied in detail, determining, if possible, the mode of introduction of the infection and how it spreads from one member to another. The program, to be conducted by the department of preventive medicine under the direction of Dr. John H. Dingle, has been approved by the directors of the Academy of Medicine of Cleveland. It will be supported by funds of the department and grants from the Brush Foundation, the Cleveland Foundation, the Commission on Acute Respiratory Disease, the Army Epidemiological Board and, it is planned, the S. P. Fenn Trust.

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*University of Oregon
Medical School*

The State Board of Higher Education has authorized the following improvements and developments: \$25,000 will go to strengthen the department of surgery through added personnel and facilities. A gift of \$10,827 has been received from ninety-seven donors to set up the Thomas M. Joyce Memorial Fund to establish a fellowship in surgery. Preliminary plans for a combined administration and laboratory building have been approved. The board authorized transfer of funds to add to general research and to budget \$20,000 of

a \$60,000 three year research grant from the Kellogg Foundation for nursing education. The following promotions have been authorized: Dr. Homer P. Rush to clinical professor of medicine; Drs. Robert L. Benson, John H. Fitzgibbon, Blair Holcomb and Merle Margason to clinical professors of medicine; Drs. Isidor Cherniac Brill and Wesley E. Gatewood to associate clinical professors of medicine; Dr. Willard F. Hollenbeck to assistant clinical professor of medicine, and Drs. John Krygier, Frank Perlman and Frank Underwood to assistant clinical professors of medicine.

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University of Chicago Medical School

The establishment of a Dallas Burton Phemister Lectureship has been proposed. Friends and students will undertake to raise a \$30,000 fund for that purpose. Dr. Leon O. Jacobson, associate dean, division of biological sciences, is chairman of the Phemister Fund. Dr. Phemister, who recently relinquished his duties as chairman of the department of surgery, which he organized twenty-two years ago, is continuing to work at the university as the Thomas D. Jones professor of surgery.

Dr. Reinhard Rembe, an eye, ear, nose and throat specialist of Chicago, left the bulk of his estate, estimated at \$500,000, to the university for research in medicine and surgery.

Frank R. Lillie, Sc.D., Andrew MacLeish distinguished service professor emeritus of embryology and dean emeritus of the division of biologic sciences, University of Chicago School of Medicine, died November 5, aged 77.

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University of Virginia Department of Medicine

October 3rd, Dr. Manfred W. Comfort of the Mayo Clinic spoke to the faculty and student body on the subject of "Pancreatitis." November 14th, Dr. Paul B. Magnuson, professor of surgery, Northwestern University Medical

School, gave the first annual lecture under the Charles Venable Lectureship on Traumatic Surgery. Dr. Magnuson spoke on the subject of "Backache and Disc Symptoms: So Confusing." November 17th, Dr. Philip S. Hench of the Mayo Clinic, gave the annual Alpha Omega Alpha address. Dr. Hench spoke on "Walter Reed and the Conquest of Yellow Fever." November 6th, Dr. H. B. Mulholland, professor of practice of medicine, spoke at the Post Graduate Seminar of the Medical College of the State of South Carolina, Charleston, S. C., on the subject of "Recent Advances in the Treatment of Diabetes Mellitus."

The Ciba Pharmaceutical Company has given a grant of \$2,500 for investigation in the field of bacterial allergy. This investigation will be conducted in the department of internal medicine under the supervision of Dr. Oscar Swineford, professor of practice of medicine.

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Ohio State University College of Medicine

The college offered its annual Collegiate Assembly and celebrated its 113th anniversary December 6, 1947. Dr. Robert A. Moore, an alumnus, dean of Washington University School of Medicine, was guest speaker. He spoke on "Problems in Gerontology." Dr. N. Paul Hudson, dean of the Graduate School, spoke on the integrated program of advanced education and research, and Dr. Robert M. Zollinger, chairman of the department of surgery, spoke on "What Is a Surgeon?"

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Duke University School of Medicine

Dr. William W. Sargent, British psychiatrist, has joined the department of neuropsychiatry, as visiting professor for one year. Dr. Sargent is physician at the Maudsley Hospital, London, where he has conducted research for ten years, and serves as clinical director of psychiatry, Sutton Emergency Hospital.

*Stanford University
School of Medicine*

Dr. Alfred E. Maumenee of the Wilmer Ophthalmological Institute of Baltimore has been appointed professor of surgery assigned to ophthalmology beginning September, 1948. Dr. Dohrman K. Pischel, clinical professor of ophthalmology, will serve as acting head in the meantime.

Dr. William W. Greulich, professor of anatomy and director of the Brush Foundation, has returned from Guam and Japan where he spent three months making a survey of the physical and nutritional status of children under the joint auspices of the U. S. Navy and the Pacific Science Board of the National Research Council.

Jefferson Medical College

The Annual Lecture given by the Epsilon Chapter of the Alpha Kappa Kappa Fraternity, in memory of Dr. George A. Ulrich, clinical professor of obstetrics, was held October 20, 1947. The lecturer was Dr. Andrew Conway Ivy, vice president in charge of the Chicago Professional Colleges, of the University of Illinois, on "Experiments in Resuscitation from Asphyxia."

Dr. C. C. Wu, professor of medicine at Hsiang-ya Medical College, Changsha, China, Dr. Chun Leu of the Central Hospital of Tsientsin, Dr. Sanjivi, professor of medicine at Madras Medical School, India, and Dr. Sonthaia of the Medical School of Bangkok, Siam, are visiting fellows in the department of medicine.

*Creighton University
School of Medicine*

New appointments: James M. Beebe, Ph.D., Amherst, Mass., assistant professor of bacteriology; assistant professors of physiology and pharmacology, Harold C. Struck, Ph.D., Chicago, and John Ferguson, Ph.D., Edmonton, Alberta, Canada; instructor in pathology, Dr. F. J. Campos, El Paso, Texas; assistants in surgery, Drs. Robert Fitzgibbons, Wil-

liam N. Hardman, both of Rochester, Minn., in charge of anesthesiology, and Harry H. McCarthy, Rochester, Minn.; assistant in medicine, Dr. John D. Hartigan, Rochester, Minn.; acting assistants in medicine, Drs. Richard J. Fangman and William O. Griffith, Council Bluffs, Iowa.

*University of Oklahoma
School of Medicine*

Dr. Mark R. Everett, professor of biochemistry, has been named temporary dean until August 31, 1948. The following other appointments have also been announced: Dr. Homer F. Marsh, associate professor of bacteriology, associate dean of students; Dr. Henry Turner, associate professor of medicine, associate dean of faculty; and Dr. Arthur A. Hellbaum, professor of pharmacology, associate dean of graduate studies.

*University of Arkansas
School of Medicine*

Dr. Benjamin F. Wells, professor of medicine, has resigned the deanship to enter private practice. Dr. Joseph F. Roberts is reported to have been appointed his successor. Official confirmation of the report has not yet been received.

*Syracuse University
College of Medicine*

Dr. Tyree C. Wyatt has been appointed professor and head of the department of pediatrics. From 1922 to 1927 he was a member of the department of pathology. He will continue to direct the pediatric pathology division.

*Marquette University
School of Medicine*

Walter Zeit, Ph.D., who has been an associate professor of anatomy since 1943, has been appointed director of the department to succeed the late Dr. Eben J. Carey.

General News

Program for Physical Therapy

A new program in physical therapy, under the joint sponsorship of the Simmons College School of Science, and the Peter Bent Brigham, Children's, and Massachusetts General Hospitals, is now offered undergraduate and graduate students. The undergraduate program, which will be given at Simmons College, will include three years of academic work, with emphasis on the biological sciences, physical education, and psychology. Starting with the fourth year, 16 months will be devoted to the theory and practice of physical therapy at the cooperating hospitals. Completion of the course will lead to the degree of Bachelor of Science and a diploma in physical therapy.

Properly qualified graduates of other colleges and universities and graduate nurses will be admitted to the physical-therapy course at the beginning of the fourth year, and upon satisfactory completion of the work will be candidates for certification in physical therapy. Annual enrollment will be limited to 25 students.

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Naval Reserve Officers

It is noted that the Association of American Medical Colleges is meeting at Sun Valley, Idaho, during the period October 27-29. As there are many former Naval Reserve Medical Officers who will be at the meeting, it would be appreciated if the following announcement could be read to the assembly some time during the meeting, inviting the attention to Naval Reserve Medical Officers to the opportunity for active duty at the various stations of this Command.

"The Naval Air Reserve Training Command, with headquarters at Naval Air Station, Glenview, Illinois, has 18 nationally located Naval Air Stations

and 4 Naval Air Reserve Training Units at which Naval Reserve Medical Officers may serve on active duty with full pay and allowances and with the privilege of returning to civilian life at any time upon request. Additional details may be obtained from Chief of Naval Air Reserve Training, Naval Air Station, Glenview, Illinois."

Yours very truly,

G. B. RIBBLE, Captain, M.C., U.S.N.,
Staff Medical Officer.

* *

Fellowships for Research in Ophthalmology

Fellowships for research in ophthalmology have been granted to the medical schools of Harvard and Yale Universities by the Eye-Bank for Sight Restoration, Inc., it was announced here today by Mrs. Aida de Acosta Breckinridge, executive director.

Recipients of fellowships will devote themselves chiefly to problems related to the cornea. It is expected that the knowledge thus acquired will aid in the conservation of vision and the restoration of sight among thousands of individuals. One of the principal objectives of research carried on at the present time is the discovery of a method for the preservation of corneal tissue for a period longer than 72 hours.

The Research Fellows are Dr. Thomas Duane, for work at the Howe Laboratory of Harvard University Medical School to investigate the metabolism of the cornea under various conditions of storage with the idea of determining what basically takes place which deleteriously affects corneal tissue and makes it unsuitable for corneal transplant, and Dr. David Freeman, for work at the Yale University School of Medicine, whose problem it will be to attempt to determine whether embryonic tissues can be grafted upon members of the same

species and upon other species. This is an experiment in tissue transplantation.

In the past years fellowships have also been granted by the Eye-Bank for Sight Restoration, Inc., to Johns Hopkins University for research at the Wilmer Institute there, and to New York University.

The Eye-Bank for Sight Restoration, Inc., collects healthy corneal tissue from human eyes for transplanting to blind persons who have lost their sight because of corneal defects. Its national headquarters are located at 210 East 64th Street, New York City, where it maintains its own research laboratory.

The operation substituting a healthy cornea for a damaged one can restore sight in only one type of blindness— that caused solely by opacity of the cornea when the rest of the eye and optic nerve are normal.

* *

American College of Physicians Research Fellowships

Seven Research Fellowships in Medicine have been awarded by the American College of Physicians for the year which begins July, 1948. The College makes available each year a limited number of these Fellowships with stipends

ranging from \$2,200 to \$3,200, the purpose of which is to give to young physicians who are preparing for an academic career in internal medicine or in pediatrics, an opportunity to have a year of investigative experience as an early part of their preparation.

* *

Professorships of Clinical Pathology

The American Society of Clinical Pathologists at its annual business meeting held in October, adopted the following resolutions:

"Whereas, the practice of Clinical Pathology has become an important medical specialty, and

"Whereas, the teaching of this specialty in our medical schools as a minor subject is no longer adequate, therefore

"Resolved, that Professorships of Clinical Pathology be established in all schools of medicine, and

"Resolved, that this resolution be forwarded to the American Society of Clinical Pathologists with the suggestion that they bring it to the attention of the Council on Medical Education and Hospitals of the American Medical Association and to the Association of American Medical Colleges."

Book News

A Textbook of Clinical Neurology: With an Introduction to the History of Neurology

By Israel S. Wechsler, M.D., Clinical Professor of Neurology, Columbia University. Ed. 6. W. B. Saunders Company, Philadelphia. 1947. Price, \$8.50.

Any book which can last for twenty years and go into six editions must have more than passing value as a text. It is gratifying to note that neurology is not being neglected since psychiatry has gained so much prominence. Neurology is an important field in medicine. This book is a good text for acquainting the student with that fact and it gives him valuable information not only as to diagnosis but even more important as to treatment from a condition which is becoming more common with the present stress and strain of modern living—affections of the nervous system.

* *

The Human Race

By Emil Froeschels. Philosophical Library, New York. 1947. Price, \$3.

A study in the nature of knowledge.

* *

History of Medicine

By Cecelia C. Mettler, Ph.D., late Assistant Professor of Medical History, University of Georgia School of Medicine and late Associate in Neurology, Columbia University College of Physicians and Surgeons. The Blakiston Company, Philadelphia. 1947. Price, \$8.50.

A completely documented history of the development of medical knowledge from its beginning to the present day. Each chapter relates the history of the subject covered in the standard medical curriculum, tracing the development of this particular branch of medicine from its inception to its place in modern scientific thought. For the student it provides a text which keeps pace with his studies. It is easy to read, interesting and useful.

* *

Bacteriology for Medical Students and Practitioners

By A. G. Gardner, D.M., Professor in Bacteriology, University of Oxford. Ed. 3. Geoffrey Cumberlege, Oxford University Press, London. 1947. Price, \$2.50.

A very good book to carry in one's pocket for ready reference.

The ABC of Acid-Base Chemistry

By Horace W. Davenport, Professor of Physiology, University of Utah School of Medicine. Published by the author. 1947. Price, \$1.50.

An outline of the elements of acid-base chemistry for the medical student.

* *

Illustrations of Regional Anatomy

By E. B. Jamieson, M.D., Senior Demonstrator and Lecturer Emeritus, Anatomy Department, University of Edinburgh, Sections I to VII (about 325 plates, all in color). Ed. 7. The Williams & Wilkins Company, Baltimore. 1947.

A beautiful small atlas; well done; convenient size and complete. Section I: Central Nervous System; Section II: Head and Neck; Section III: Abdomen; Section IV: Pelvis; Section V: Thorax; Section VI: Upper Limb; Section VII: Lower Limb. Every student will do well to provide himself with a copy of this valuable and helpful work.

* *

Cornell Conferences on Therapy. Vol. II

Edited by Harry Gold, M.D., Managing Editor, and Associates. The Macmillan Company, New York. 1947. Price, \$3.75.

The very long list of well known authorities on therapy and medical practice who participated in this conference gives assurance of the value of what is presented. Sixteen conferences out of a total of 100 were selected for this volume. New discoveries and new principles are stressed in an endeavor to present to the reader progress in treatment.

* *

Diseases of the Nose, Throat and Ear

By William L. Ballenger, M.D., late professor in the University of Illinois, and Howard C. Ballenger, M.D., Associate Professor and Acting Chairman of the Department of Otolaryngology, Northwestern University Medical School, assisted by John J. Ballenger, M.D., Research Fellow in Otolaryngology, Northwestern University Medical School. Ed. 9. Lea & Febiger, Philadelphia. 1947. Price, \$12.50.

Rewritten and brought up to date. A new chapter on headaches and neuralgias of the face and head has been added. Rhinoplastic reconstruction is described and fully illustrated. Many new illustrations; complete coverage of the field.

Nursing in Modern Society

By Mary Ella Chayer, R.N., Associate Professor of Nursing Education, Teachers College, Columbia University. G. P. Putnam's Sons, New York. 1947. Price, \$4.

* *

Diseases of the Nervous System

By W. Russell Brain, D.M. (Oxford), Physician to the London Hospital, etc. Ed. 3. Geoffrey Cumberlege, Oxford University Press, London. 1947. Price, \$10.75.

* *

Synopsis of Neuropsychiatry

By Lowell S. Selling, M.D., Director Division of Mental Health, Florida Department of Health. Ed. 2. The C. V. Mosby Company, St. Louis. 1947. Price, \$6.50.

Students will welcome this synopsis of a difficult subject. The job is well done.

* *

The Oculorotary Muscles

By Richard G. Scobee, M.D., Instructor in Ophthalmology, Washington University School of Medicine. The C. V. Mosby Company, St. Louis. 1947. Price, \$8.

The author brings to life an entity which has, no doubt, received the attention of clinicians which it deserves. He approaches the subject from the standpoint of a detective, which is a lure which cannot be resisted in these days of deluge of mystery stories. Not only the ophthalmologist but the general practitioner will find this book of value in his daily work.

* *

The Clinical Examination of the Nervous System

By G. H. Monrad-Krohn, M.D., Professor of Medicine in the Royal Frederick University, Oslo, etc. Ed. 3. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, New York. 1947. Price, \$4.50.

Any book which has lived for twenty-five years must not only be a good book, but it must have a definite and strong appeal. This book has both these qualities. The author is an authority in his field and he has written a good book.

* *

Unipolar Lead Electrocardiography

By Emanuel Goldberger, M.D., Montefiore Hospital, New York. Lea & Febiger, Philadelphia. 1947. Price, \$4.

Each abnormality is described in terms of three standard leads, the three augmented unipolar extremity leads and the six unipolar precordial leads. The advantage of unipolar leads are stressed.

An Atlas of Anatomy

By J. C. Boileau Grant, M.B., Professor of Anatomy, University of Toronto. Ed. 2. The Williams & Wilkins Company, Baltimore. 1947. Price, \$10.

Improved and enlarged. Plates are rearranged in more convenient sequence and color has been added to many of them. Special new features include complete coverage of hernia, the common anomalies discovered in the dissecting room, illustrations of epiphyses of the limb bones and plates of the cranial nerves. Additions total 171 entirely new illustrations and 11 improved or enlarged replacements of old drawings.

* *

A Primer of Cardiology

By George F. Burch, M.D., Associate Professor of Medicine, and Paul Reaser, M.D., Instructor in Medicine, Tulane University of Louisiana School of Medicine. Lea & Febiger, Philadelphia. 1947. Price, \$4.50.

For the beginner in cardiology, not encyclopedic but showing how the basic sciences and clinical medicine must be integrated in order to understand cardiology. This is an excellent text for the medical student because it gives him an easy but proper approach to the evaluation of an electrocardiogram.

* *

The Foot and Ankle: Their Injuries, Diseases, Deformities and Disabilities

By Philip Lewin, M.D., Associate Professor of Bone and Joint Surgery and Acting Head of the Department, Northwestern University Medical School. Ed. 3. Lea & Febiger, Philadelphia. 1947. Price, \$11.

Revised; much new material added which has increased the size of the book considerably; many new illustrations. Compound fractures, crushing wounds and osteomyelitis have been given added emphasis. Ringworm, too, is given more attention. The author's long experience in this field gives authority to his writings.

* *

Poisons: Their Isolation and Identification

By Frank Bamford, Ph.D., Reader in Clinical Chemistry, University of Edinburgh, with a Foreword by Professor Sydney Smith, Regius Professor of Forensic Medicine, University of Edinburgh. The Blakiston Company, Philadelphia. 1947. Price, \$5.

This book provides the working details needed by chemists and physicians in dealing with cases of poisoning. A special chapter is devoted to the identification of alkaloids and a number of qualitative and quantitative tests have been included. Concise and compact, containing much practical and original information.

***Surgical Disorders of the Chest:
Diagnosis and Treatment***

By J. K. Donaldson, M.D., Associate Professor of Surgery, University of Arkansas School of Medicine, etc. Ed. 2. Lea & Febiger, Philadelphia. 1947. Price, \$3.50.

The author's experience in World War II is reflected in this book. A new chapter on traumatic hemothorax has been added; the text has been enlarged considerably and new illustrations have been added. A valuable book for the general practitioner.

♦ ♦

***Los Angeles County Hospital
House Staff Manual***

Prepared by a Board of Editors of which Dr. Robert F. Nielsen was chairman, and assistant editors and contributors from the attending, house and resident staffs of the Los Angeles County Hospital, Los Angeles, California. Ed. 5. Price, \$4.

This manual represents the basis of all therapy in the Los Angeles County Hospital. It is a veritable mine of information, including rules for interns and residents and the general conduct of all persons connected with the hospital in a patient care relationship. It is a condensed encyclopedia. It is a most commendable piece of work. Every intern and resident—even staff members—will do well to have a copy of this manual at hand for quick reference. It takes the place of many books and is of convenient size, lithoprinted, easy to read.

♦ ♦

***Catalogue of the Muetter Museum of the
College of Physicians and Surgeons of
Philadelphia. Part I***

Compiled by Ella N. Wade, Curator. 1947.

This catalogue, to be issued in parts, will list under appropriate groupings, 7,300 specimens now deposited in the Muetter Museum. Thus, the contents of the museum will be made easily available to those persons who are interested in what the museum has to offer. The museum was presented to the college in 1863 by the late Dr. Thomas Dent Muetter.

♦ ♦

***Teaching Psychotherapeutic Medicine:
An Experimental Course for General
Physicians***

Given by a group of authors and edited by Helen Leland Witmer, Ph.D. The Commonwealth Fund, New York. 1947. Price, \$3.75.

Twenty-five representative physicians from Minnesota and nearby states (most of them in general practice) studied for two weeks, with seven psychiatrists and two internists, the meaning and value of the patient-physician relationship, the natural history of the personality, the significance of psychoneurotic behavior, and the ways in which everyday practice can be made more helpful and more rewarding by simple psychotherapy—in brief, the art of helping people whose trouble is emotional as well as physical.

Meantime, by these methods, they treated patients who came to outpatient service with the everyday complaints that are ordinarily so hard to handle—headache, indigestion, backache, vague and persistent pains, fatigue, nervousness. They exchanged information about their experience with these patients and asked many questions which the instructors answered, sometimes at length. They came to feel, as a result of this course, that with greater understanding of human emotions and the physical expressions of emotional tension they could give better medical care to patients and get greater satisfaction in the practice of medicine.

This running account, based on verbatim recording, contains all the principal teaching material of the course and much of the discussion. There are chapters on History-taking; the Patient-Physician Relationship; Normal Personality Development; the Meaning of a Psychoneurosis; the Diagnosis of Psychoneurosis; Anxiety; Psychotherapy; Common Psychopathology; Life Situation, Emotions, and Disease; and discussions of various Clinical Problems including: A Patient with Backache, A Patient with Diverticula and Depression, A Patient with Disabling Pain, a Patient Facing Old Age, etc.

♦ ♦

***General Psychology:
Principles and Practice***

By John Edward Bentley, Professor of Psychology, The American University. J. B. Lippincott Company, Philadelphia. 1947. Price, \$3.50.

A comprehensive introduction to the science of psychology and a basis for further psychological and psychiatric study. Fundamentals of anatomy and physiology are discussed in their relationship to mental functions.

♦ ♦

Textbook of Human Physiology

By William F. Hamilton, Ph.D., Professor of Physiology, University of Georgia School of Medicine. F. A. Davis Company, Philadelphia. 1947.

A student textbook; restricted to the things that the average medical student can encompass in the short time he is exposed to physiology. The author presents in the simplest possible manner the general principles of human physiology, leaving to future experience in the clinic and hospital the acquisition of more detailed knowledge of the subject. Which is as it should be.

Stereoscopic Atlas of Neuroanatomy

By H. S. Rubinstein, M.D., Ph.D., Director of the Alfred Ullman Laboratory for Neuropsychiatric Research, Sinai Hospital, Baltimore, and C. L. Davis, M.D., Professor of Anatomy School of Medicine, University of Maryland. Grune & Stratton, New York. 1947. Price, \$10.

This atlas consists of forty-three plates illustrating in stereoscopic photographic form those brain structures which have been found useful by the authors in teaching neuroanatomy. Beginning with embryologic considerations, the atlas progressively traces the development, structure and function of the nervous system. The atlas serves as a constant aid in orientation during the entire course in neuroanatomy and later becomes useful as a substitute for actual brain specimens.

* *

400 Years of a Doctor's Life

Collected and arranged by George Rosen, M.D., and Beate Caspari-Rosen, M.D. Henry Schuman, New York. 1947. Price, \$5.

This book is a composite portrait of more than eighty doctors who have made their rounds in many countries through the past four centuries. It is a treasury of the most characteristic and revealing passages selected from the entire rich literature of medical autobiography. It is a unique piece of work. The portrait of a doctor has many names and many poses. At one time it is Jerome Cardigan, a sixteenth century physician and astrologer. At another time it is Benjamin Rush, Rudolph Virchow, Ronald Ross, Harvey Cushing, Hans Zinsser. It makes most interesting reading—and it is fascinating.

* *

American Medical Research: Past and Present

By Richard H. Shryock, Ph.D., Professor of History and Lecturer in Medical History, University of Pennsylvania. The Commonwealth Fund, New York. 1947. Price, \$2.50.

A historical account of the growth of American medical research from its origin to its present status of leadership.

* *

Biology for Medical Students

By C. C. Hentschel, M.Sc. (Lond.), formerly demonstrator in biology, St. Bartholomew's Medical College, and W. R. Ivimey Cook, B.Sc., Ph.D. (Lond.), Lecturer in Botany, University College, Cardiff. Ed. 4. Longmans, Green and Co., New York. 1947. Price, \$7.

Revised, many parts rewritten; very comprehensive and all inclusive with more than four hundred illustrations, graphs and outlines.

Emotional Maturity: The Development and Dynamics of Personality

By Leon J. Saul, M.D., Associate Professor of Psychiatry, Temple University School of Medicine. J. B. Lippincott Company, Philadelphia. 1947. Price, \$5.

Presents fundamental, basic facts concerning neurosis; a preparation for further psychiatric reading; the interrelation and conflict of the feelings and desires which are the mainsprings of living and which produce the varieties of daily thought and action. A good book for further excursions into psychiatric problems.

* *

Handbook of Fractures

By Duncan Eve, M.D., Surgeon-in-Chief, Nashville, Chattanooga and St. Louis Railroad, etc., in collaboration with Trimble Sharber, M.D., Attending Surgeon, St. Thomas Hospital, Nashville, Tennessee. The C. V. Mosby Company, St. Louis. 1947. Price, \$5.

If every medical student had a copy of this book and it were related with a good course in fractures, he would be far better prepared to treat fractures properly than is the graduate of today. It is a practical book; concise, based on a lifetime of experience by a keen observer who was for many years a teacher. The student could not make a better investment than to procure a copy of this book.

* *

Textbook of General Surgery

By Warren H. Cole, M.D., Professor and Head of the Department of Surgery, University of Illinois College of Medicine, and Robert Elman, M.D., Professor of Clinical Surgery, Washington University School of Medicine. Ed. 5. D. Appleton-Century Company, New York. 1947. Price, \$11.

Inasmuch as this text is the product of what can be regarded as the *creme de la creme* of authorities in the field of surgery, it is justly an excellent job of presenting as much of surgery as the medical student—and also the practitioner—will find useful and valuable in every day work, either to learn or to practice. The text has been rewritten and a new chapter on preoperative and postoperative care, entitled *Surgical Convalescence*—has been added. The material on the nutritional requirements of the patient, including the administration of fluids, has been expanded considerably. The section on chemotherapy, including the use of streptomycin, has been rewritten completely. While many other changes have been made, the general plan of the book has been retained. Having gone through five editions speaks well for the book.

*Pharmacology and Experimental
Therapeutics: Survey for 1941-1946*

By Hamilton H. Anderson, Fumiko Murayama and Benedict E. Abreu. University of California Press, Berkeley and Los Angeles. 1947. Price, \$6.50.

An attempt to bring together significant studies in the field of applied pharmacology and toxicology. Quantitative data only are included in an effort to relate dosage to specific effect. Each medicinal agent is recorded under its accepted name. In vitro effects and in vivo activities in the several species and especially in man are summarized. The survey was designed primarily to record progress of basic research and clinical investigation during the war years.

♦ ♦

*Letheon: The Cadenced Story
of Anesthesia*

By Chauncey D. Leake, Ph.D., Professor of Pharmacology, Vice President and Dean, University of Texas Medical Branch. The University of Texas Press, Austin. 1947.

This is an experiment in cadenced narrative of the story of anesthesia, which, the author says, should be read aloud or not at all. Those who have been favored with an opportunity to hear the story read were deeply impressed with the "experiment" which is offered as a tribute on the centennial

of ether and chloroform anesthesia. The author must be complimented on what he has achieved. This is a most intriguing and enjoyable narrative of anesthetics developing from attempts at anesthesia. What is anesthesia? We know that it gives relief from pain, but what is pain? Therefore, the author says, the history of anesthesia is essentially a record of blundering empirical achievement. A chronology of anesthesia fills about forty pages of the monograph, beginning with the prehistorical, then on to 3500 B. C., and ending with a reference dated 1947. This chronology by itself is interesting reading. Again, "hats off to the author" for his splendid presentation.

♦ ♦

Recent Advances in Pathology

By Geoffrey Hadfield, M.D., Professor of Pathology, and Lawrence P. Garrod, M.D., Professor of Bacteriology, University of London. Ed. 5. The Blakiston Company, Philadelphia. 1947. Price, \$6.

Medical students will find this a very informative and easily read and understood exposition of pathological states; concise but complete—and not a large book. Includes a new chapter on the liver, with an account of recent work on the relationship between hepatic diseases and dietary deficiencies and on the study of epidemic hepatitis. A new and simplified nomenclature is used. Much has been rewritten and revised.

Gathercoal and Wirth--Pharmacognosy

By EDMUND N. GATHERCOAL,
Ph.G., Ph.M.

Emeritus Professor of Pharmacognosy, University of Illinois, College of Pharmacy; Ex-Member of U. S. Pharmacopoeia Review Committee.

and ELMER H. WIRTH,
Ph.C., Ph.D.

Professor of Pharmacognosy and Pharmacology, University of Illinois, College of Pharmacy; Director, University of Illinois Drug Plant Experiment Station.

Revised and Up-to-date New (2d) Edition

In this new (2d) edition of Pharmacognosy, the authors have created an effective study of drugs originating in the plant and animal kingdoms. Emphasis is on the determination of their identity and value. Such evaluation is microscopic, biological, chemical and physical, designed to determine their quality, purity and presence and nature of their adulterants.

Both teachers and students will appreciate the thorough revision that has been given to this book for the new edition. Special sections on drug plant cultivation, preparation and storage, the commerce of drugs and their analyses have been added. Conforms to the 13th edition of the *United States Pharmacopoeia* and 8th edition of the *National Formulary*.

756 Pages. 372 Illustrations and 3 Plates in Color. \$10.00

Washington Square **LEA & FEBIGER** Philadelphia 6, Pa.

